ARTICLE 8. PUBLIC WATER SUPPLY

RULE 1. PUBLIC WATER SUPPLY DIRECT ADDITIVE AND INDIRECT ADDITIVE STANDARDS

327 IAC 8-1-1 ------- Public water supply direct additive and indirect additive standards: community water system; fluoridation; phosphate additives

Each community water system that adds a fluoride or phosphate compound shall comply with the following:

(1) Fluoride compounds may be added to such water supplies after receiving a construction permit from the commissioner providing the total content of fluoride ion (F^-) after such addition does not exceed two (2.0) milligrams per liter (mg/l) unless the public water system is a participant in an Indiana state department of health approved school fluoride adjustment program for which the concentration of fluoride in a school water supply shall not exceed five and one-half (5.5) mg/l.

(2) Phosphate additives may be added to the water for treatment of iron, manganese, scale, and corrosion problems after receiving a construction permit from the commissioner. Such direct additives shall be in conformance with section 2 of this rule. Total phosphate concentration shall not exceed ten (10) mg/l measured as PO_4. Product may be provided in liquid or dry form. Containers in which the agents are packaged shall be labeled indicating product information and general instructions for use. At a minimum, the label must display the name and application of product, percentage phosphate concentration as PO_4, and certification of American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) International Standard 60, NSF Listings, Drinking Water Additives-Health Effects. In addition, if it is provided in liquid form, the label shall specify pH and specific gravity. The containers must also be marked identifying manufacturing batch number. All liquid products must be treated for bacteria control at the time of manufacture with a potably approved bacteria control agent.

{As amended at: 22 IR 2491.]

327 IAC 8-1-2 ------- Public water supply direct additive and indirect additive standards: certification requirements

(a) All public water systems shall comply with this section before the conclusion of ninety (90) days from the effective date of this rule.

(b) All direct additives in public water systems shall be certified for conformance to American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) International Standard 60, NSF Listings, Drinking Water AdditivesHealth Effects. All public water systems must compile and maintain on file for inspection by the commissioner a list of all direct additives used that come into contact with the drinking water. This list must contain the name, the description, the manufacturer of the product, and whether the direct additive is certified under this section. The list must be maintained as long as the direct additives are used by the public water supply.

(c) The following new or modified indirect additives in public water systems shall be certified for conformance to American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) International Standard 61, Classified or Recognized Drinking Water System Components, Component Materials and Treatment Additives Directory, except Section 9, Mechanical Plumbing Product:

(1) All indirect additives found in finished water storage facilities, including lubricants, tank coatings, paints, and epoxies.

(2) All indirect additives between all entry points of the distribution system, and all customer service connection meters.

(3) All filter and membrane media.

(4) All indirect additives which are classified in a category of indirect additives for which American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) International Standard 61 is available.

(d) All public water systems must demonstrate certification of direct additives and indirect additives required by subsections (b) and (c) when inspected by the commissioner.

(e) Certification that a direct additive or an indirect additive meets the standards adopted in or pursuant to this rule shall be recognized as being listed with such certification in one (1) of the following publications:

(1) "NSF Listings, Drinking Water Additives-Health Effects".

(2) "Classified or Recognized Drinking Water System Components, Component Materials, and Treatment Additives Directory".

(f) The commissioner may approve the use of a direct or indirect additive in a public water system only after the applicant has demonstrated that the direct or indirect additive is in compliance with the following conditions:

(1) The direct or indirect additive has been approved and is listed by one (1) of the publications specified by subsection (e).

(2) The direct or indirect additive has been approved by an organization having a third party certification program for direct or indirect additives that has been approved by the American National Standards Institute.

(g) The commissioner shall maintain a copy of the following:

(1) "NSF Listings, Drinking Water Additives-Health Effects".

(2) "Classified or Recognized Drinking Water System Components, Component Materials, and Treatment Additives Directory".

(h) A public water system shall not willfully introduce, permit, or suffer the introduction of a direct additive or indirect additive into the drinking water that does not meet the requirements of this rule.

{As added at: 22 IR 2492.]

327 IAC 8-1-3 ------- Public water supply direct additive and indirect additive standards: definitions

In addition to the definitions contained in IC 13-11-2, the following definitions apply throughout this rule:

(1) "Direct additives" means additives that are used in public water systems for the treatment of raw water. Direct additives are also used to protect drinking water during storage and distribution. Examples of direct additives include the following:

(A) Agents used for coagulation and flocculation.

(B) Corrosion and scale control.

(C) Softening.

(D) Sequestering.

(E) Precipitation.

(F) pH adjustment.

(G) Disinfection and oxidation.

(H) Miscellaneous treatment applications.

(I) Miscellaneous water supply products.

(2) "Entry point of the distribution system" means one (1) of the following points:

(A) In public water systems which utilize water treatment facilities, the point at which the drinking water has left the treatment facilities and has entered the distribution system.

(B) In public water systems which do not utilize water treatment facilities, the point at which the drinking water has left the supply facilities and has entered the distribution system.

(3) "Indirect additives" means additives that are materials or equipment that come in contact with drinking water or come in contact with drinking water direct additives. Examples of indirect additives include the following:

(A) Pipes.

(B) Valves and related products.

(C) Barrier materials.

(D) Joining and sealing materials.

(E) Protective materials and related products.

(F) Mechanical devices used in treatment, transmission, and distribution systems.

(4) "Operator" means the person in direct or responsible charge and supervising the operation of a wastewater or water treatment plant or a water distribution system.

(5) "Public water system" means a public water supply for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen (15) service connections or regularly serves at least twenty-five (25) individuals daily at least sixty (60) days out of the year. The term includes any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system and any collection or pretreatment storage facilities not under such control that are used primarily in connection with such system.

[As amended at: 23 IR 1622.]

327 IAC 8-1-4 ------- Public water supply direct additive and indirect additive standards: incorporation by reference

The following materials, including titles and the names and addresses of where they may be located for inspection and copying, are incorporated by reference into this rule:

(1) "NSF Listings, Drinking Water Additives-Health Effects", November 13, 1997, National Sanitation Foundation (NSF) International, 3475 Plymouth Road, Ann Arbor, Michigan, 48113-0140 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

(2) "Classified or Recognized Drinking Water Systems Components, Component Materials and Treatment Additives Directory", August, 1997, Underwriters Laboratory, Inc., Engineering Services, 416C, 333 Pfingsten Road, Northbrook, Illinois or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

{As added at: 22 IR 2492.]

RULE 2. DRINKING WATER STANDARDS

327 IAC 8-2-1 ------- Drinking water standards: definitions

In addition to the definitions contained in IC 13-11-2 and 327 IAC 1, the following definitions apply throughout this rule:

(1) "Act" means the Safe Drinking Water Act (42 U.S.C. 300f et seq.).

(2) "Action level" means the concentration of lead or copper in water specified in section 36(c) of this rule which determines, in some cases, the treatment requirements contained in sections 36 through 47 of this rule, that a water system is required to complete.

(3) "Adjustment program" means the addition of fluoride to drinking water by a public water system for the prevention of dental cavities.

(4) "Administrator" means the administrator of the U.S. EPA.

(5) "Best available technology (BAT)" means best technology, treatment techniques, or other means which the commissioner finds are available, after examination for efficacy under field conditions, and not solely under laboratory conditions, and after taking cost into consideration. For the purpose of setting maximum contaminant levels for synthetic organic chemicals, any BAT must be at least as effective as granular activated carbon.

(6) "Coagulation" means a process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

(7) "Commissioner" means the commissioner of the Indiana department of environmental management or the designated agent of the commissioner.

(8) "Community water system" means a public water system which serves at least fifteen (15) service connections used by year-round residents or regularly serves at least twenty-five (25) year-round residents.

(9) "Compliance cycle" means the nine (9) year calendar year cycle during which public water systems must monitor. Each compliance cycle consists of three (3) three-year compliance periods. The first calendar year cycle begins January 1, 1993, and ends December 31, 2001; the second begins January 1, 2002, and ends December 31, 2010; the third begins January 1, 2011, and ends December 31, 2019.

(10) "Compliance period" means a three (3) year calendar year period within a compliance cycle. Each compliance cycle has three (3) three-year compliance periods. Within the first compliance cycle, the first compliance period runs from January 1, 1993, to December 31, 1995; the second from January 1, 1996, to December 31, 1998; the third from January 1, 1999, to December 31, 2001.

(11) "Confluent growth" means a continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete.

(12) "Contaminant" means any micro-organisms, chemicals, waste, physical substance, radiological substance, or any wastewater introduced or found in the drinking water.

(13) "Conventional filtration treatment" means a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

(14) "Corrosion inhibitor" means a substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.

(15) "CT" or "CTcalc" is the product of residual disinfectant concentration (C) in milligrams per liter determined before or at the first customer and the corresponding disinfectant contact time (T) in minutes, such as C x T. If a public water system applies disinfectants at more than one (1) point prior to the first customer, it must determine the CT of each disinfectant sequence before or at the first customer to determine the total percent inactivation or total inactivation ratio. In determining the total inactivation ratio, the public water system must determine the residual disinfectant concentration of each disinfection sequence and corresponding contact time before any subsequent disinfection application point. $CT_{99.9}$ is the CT value required for ninety-nine and nine-tenths percent (99.9%)(3-log) inactivation of Giardia lamblia cysts. $CT_{99.9}$ for a variety of disinfectants and conditions appears in Tables 1.1-1.6, 2.1, and 3.1 of paragraph 141.74(b)(3).[1]

is the inactivation ratio. The sum of the inactivation ratios or total inactivation ratio shown as:

$$\sum \frac{(CTcalc)}{(CT_{99.9})}$$

is calculated by adding together the inactivation ratio for each disinfection sequence. A total inactivation ratio equal to or greater than one (1.0) is assumed to provide a 3-log inactivation of Giardia lamblia cysts.

(16) "Diatomaceous earth filtration" means a process resulting in substantial particulate removal in which:

(A) a precoat cake of diatomaceous earth filter media is deposited on a support membrane (septum); and

(B) while the water is filtered by passing through the cake on the septum, additional filter media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake.

(17) "Direct filtration" means a series of processes, including coagulation and filtration but excluding sedimentation resulting in substantial particulate removal.

(18) "Disinfectant" means any oxidant, including, but not limited to, chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment or distribution process that is intended to kill or inactivate pathogenic microorganisms.

(19) "Disinfectant contact time" (T in CT calculations) means the time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration (C) is measured. Where only one (1) C is measured, T is the time in minutes that it takes for water to move from the point of disinfectant application to a point before or at where C is measured. Where more than one (1) C is measured, T is:

(A) for the first measurement of C, the time in minutes that it takes for water to move from the first or only point of disinfectant application to a point before or at the point where the first C is measured; and

(B) for subsequent measurements of C, the time in minutes that it takes for water to move from the previous C measurement point to the C measurement point for which the particular T is being calculated.

Disinfectant contact time in pipelines must be calculated based on plug flow by dividing the internal volume of the pipe by the maximum hourly flow rate through that pipe. Disinfectant contact time within mixing basins and storage reservoirs must be determined by tracer studies or an equivalent demonstration.

(20) "Disinfection" means a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

(21) "Domestic or other nondistribution system plumbing problem" means a coliform contamination problem in a public water system with more than one (1) service connection that is limited to the specific service connection from which the coliform-positive sample was taken.

(22) "Dose equivalent" means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRUM).

(23) "Effective corrosion inhibitor residual" means a concentration sufficient to form a passivating film on the interior walls of a pipe for the purpose of sections 36 through 47 of this rule only.

(24) "Filtration" means a process for removing particulate matter from water by passage through porous media.

(25) "First draw sample" means a one (1) liter sample of tap water collected in accordance with section 37 of this rule, that has been standing in the plumbing pipes at least six (6) hours and is collected without flushing the tap.

(26) "Flocculation" means a process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means.

(27) "Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

(28) "Gross beta particle activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

(29) "Ground water under the direct influence of surface water" means any water beneath the surface of the ground with:

(A) significant occurrence of insects or other macro-organisms, algae, or large-diameter pathogens such as Giardia lamblia; or

(B) significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions.

Direct influence must be determined for individual sources in accordance with criteria established by the commissioner. The commissioner's determination of direct influence may be based on site-specific measurements of water quality and/or documentation of well construction characteristics and geology with field evaluation.

(30) "Halogen" means one (1) of the chemical elements chlorine, bromine, or iodine.

(31) "Initial compliance period" means January 1993 to December 1995, for the contaminants listed in sections 4 (other than arsenic, barium, cadmium, fluoride, lead, mercury, selenium, and silver), 5, and 5.4(a) (other than benzene, vinyl chloride, carbon tetrachloride, 1,2-dichloroethane, trichloroethylene, 1,1-dichloroethylene, 1,1,1-trichloroethane, and paradichlorobenzene) of this rule.

(32) "Large water system" means a water system that serves more than fifty thousand (50,000) people for the purpose of sections 36 through 47 of this rule only.

(33) "Lead service line" means a service line made of lead which connects the water main to the building inlet and any lead pigtail, gooseneck, or other fitting which is connected to such lead line.

(34) "Legionella" means a genus of bacteria, some species of which have caused a type of pneumonia called Legionnaires Disease.

(35) "Manmade beta particle and photon emitters" means all radionuclides emitting beta particle and/or photons listed in "Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure", NBS Handbook 69, as amended August 1973, U.S. Department of Commerce, except the daughter products of thorium-232, uranium-235, and uranium-238.

(36) "Maximum contaminant level (MCL)" means the maximum permissible level of a contaminant in water which is delivered to the free flowing outlet of the ultimate user of a public water system, except in the case of turbidity where the maximum permissible level is measured at the point of entry to the distribution system. Contaminants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by water quality, are excluded from this definition.

(37) "Maximum contaminant level goal (MCLG)" means the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur and which includes an adequate margin of safety. Maximum contaminant level goals are nonenforceable health goals.

(38) "Maximum total trihalomethane potential (MTP)" means the maximum concentration of total trihalomethanes produced in a given water containing a disinfectant residual after seven (7) days at a temperature of twenty-five (25) degrees Celsius or above.

(39) "Medium size water system" means a water system that serves greater than three thousand three hundred (3,300) and less than or equal to fifty thousand (50,000) persons for the purpose of sections 36 through 47 of this rule only.

(40) "Near the first service connection" means at one (1) of the twenty percent (20%) of all service connections in the entire system that are nearest the water supply treatment facility, as measured by water transport time within the distribution system.

(41) "Noncommunity water system" means a public water system which has at least fifteen (15) service connections used by nonresidents or which regularly serves twenty-five (25) or more nonresident individuals daily for at least sixty (60) days per year.

(42) "Nontransient noncommunity water system (NTNCWS)" means a public water system that is not a community water system which regularly serves the same twenty-five (25) or more persons at least six (6) months per year.

(43) "Optimal corrosion control treatment" means the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while ensuring that the treatment does not cause the water system to violate any national primary drinking water regulations for the purpose of sections 36 through 47 of this rule only.

(44) "Performance evaluation sample" means a reference sample provided to a laboratory for the purpose of demonstrating that the laboratory can successfully analyze the sample within limits of performance specified by the administrator. The true value of the concentration of the reference material is unknown to the laboratory at the time of the analysis.

(45) "Picocuri (pCi)" means the quantity of radioactive material producing two and twenty-two hundredths (2.22) nuclear transformations per minute.

(46) "Point of disinfectant application" is the point where the disinfectant is applied and water downstream of that point is not subject to recontamination by surface water run-off.

(47) "Point-of-entry treatment device (POE)" is a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in drinking water distributed throughout the house or building.

(48) "Point-of-use treatment device (POU)" is a treatment device to a single tap used for the purpose of reducing contaminants in drinking water at that one (1) tap.

(49) "Public water system" means a public water supply for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen (15) service connections or regularly serves at least twenty-five (25) individuals daily at least sixty (60) days out of the year. "Public water system" includes any collection, treatment, storage, and distribution facilities under control of the operator of such system, and used primarily in connection with such system and any collection or pretreatment storage facilities not under such control that are used primarily in connection with such system. A public water system is either a community water system or a noncommunity water system, as defined in subdivisions (8) and (41).

(50) "Rem" means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A millirem (mrem) is one-thousandth (1/1,000) of a rem.

(51) "Repeat compliance period" means any subsequent compliance period after the initial compliance period.

(52) "Residual disinfectant concentration" (C in CT calculations) means the concentration of disinfectant measured in milligrams per liter in a representative sample of water.

(53) "Sanitary survey" means an on-site inspection of the water source, facilities, equipment, construction, and operation and maintenance of a public water system for the purpose of evaluating the adequacy of such source, facilities, equipment, construction, and operation and maintenance for producing and distributing safe drinking water.

(54) "Sedimentation" means a process for removal of solids before filtration by gravity or separation.

(55) "Service line sample" means a one (1) liter sample of water collected in accordance with section 37(b)(3) of this rule that has been standing at least six (6) hours in a service line.

(56) "Single family structure" means a building constructed as a single family residence that is currently being used as either a residence or a place of business for the purpose of sections 36 through 47 of this rule only.

(57) "Slow sand filtration" means a process involving passage of raw water through a bed of sand at low velocity (generally less than four-tenths (0.4) meter per hour or forty-five (45) to one hundred fifty (150) gallons per day per square foot) resulting in substantial particulate removal by physical and biological mechanisms.

(58) "Small water system" means a water system that serves three thousand three hundred (3,300) persons or fewer for the purpose of sections 36 through 47 of this rule only.

(59) "Standard sample" means the aliquot of finished drinking water that is examined for the presence of coliform bacteria.

(60) "Supplier of water" means any person who owns and/or operates a public water system.

(61) "Surface water" means all water occurring on the surface of the ground, including water in a stream, natural and artificial lakes, ponds, swales, marshes, and diffused surface water.

(62) "System with a single service connection" means a public water system which supplies drinking water to consumers via a single service line.

(63) "Too numerous to count" means that the total number of bacterial colonies exceeds two hundred (200) on a forty-seven (47) millimeter diameter membrane filter used for coliform detection.

(64) "Total trihalomethanes (TTHM)" means the sum of the concentration in milligrams per liter of the trihalomethane compounds:

(A) trichloromethane (chloroform);

(B) dibromochloromethane;

(C) bromodichloromethane; and

(D) tribromomethane (bromoform);

rounded to two (2) significant figures.

(65) "Transient noncommunity water system (TWS)" means a noncommunity water system that does not regularly serve at least twenty-five (25) of the same persons over six (6) months per year.

(66) "Trihalomethane (THM)" means one (1) of the family of organic compounds, named as derivatives of methane, wherein three (3) of the four (4) hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

(67) "U.S. EPA" or "EPA" means the United States Environmental Protection Agency.

(68) "Virus" means a virus of fecal origin which is infectious to humans by waterborne transmission.

(69) "Waterborne disease outbreak" means the significant occurrence of acute infectious illness epidemiologically associated with the ingestion of water from a public water system which is deficient in treatment as determined by the commissioner.

[1]Federal Register, Part II, 40 CFR 141, June 29, 1989, Volume 54, Number 124, pages 27532 through 27534.

[As amended at: 23 IR 1623.]

327 IAC 8-2-2 ------- Drinking water standards: applicability of rule; modification of monitoring requirements

(a) Each public water system shall comply with all of the provisions of this rule unless the public water system meets all of the following conditions:

(1) Consists only of distribution and storage facilities and does not have collection and treatment facilities.

(2) Obtains all of its water from, but is not owned or operated by, a public water system to which this article applies.

(3) Does not sell water to any person.

(4) Is not a carrier which conveys passengers in interstate commerce.

(b) When a public water system supplies water to one (1) or more public water systems, the commissioner may modify the monitoring requirements imposed by this rule to the extent that the interconnection of the systems justifies treating them as a single system for monitoring purposes. Any modified monitoring shall be conducted pursuant to a schedule specified by the commissioner and concurred in by the administrator. The commissioner shall provide a copy of the determination to the administrator.

[As amended at: 14 IR 1006.]

327 IAC 8-2-3 ------- Drinking water standards: analytical methods

Except as otherwise provided by this rule, the analytical procedures used as methods of analysis to determine the quality of water sampled shall be in accordance with this rule.

[As amended at: 14 IR 1006.]

327 IAC 8-2-4 ------- Drinking water standards: inorganic chemicals; maximum contaminant levels

(a) The following MCLs for inorganic chemicals apply to all community water systems, nontransient noncommunity water systems, and transient noncommunity systems except as provided in subsection (b):

Contaminant	Level in Milligrams Per Liter
Nitrate	10 (as nitrogen)
Nitrite	1 (as nitrogen)
Nitrate and nitrite	10 (as nitrogen)

(b) The commissioner may allow nitrate levels up to, but not to exceed, twenty (20) milligrams per liter in a noncommunity water system if the supplier of water meets all of the following conditions:

(1) Such water will not be available to children under six (6) months of age.

(2) There will be continuous posting of the fact that nitrate levels exceed ten (10) milligrams per liter and the potential health effects of exposure.

(3) Local and state public health authorities shall be notified annually of nitrate levels that exceed ten (10) milligrams per liter.

(4) No adverse health effects shall result.

(5) The commissioner may require additional notice to the public as provided by section 15 of this rule.

(c) The following MCL for fluoride applies to all community water systems:

Contaminant	Level in Milligrams Per Liter
Fluoride	4.0

(d) The following MCLs for inorganic chemicals apply to all community water systems and nontransient noncommunity water systems:

Contaminant	Level in Milligrams Per Liter Except Asbestos
Antimony	0.006
Arsenic	0.05
Asbestos	7 (MFL)[1]
Barium	2
Beryllium	0.004
Cadmium	0.005
Chromium	0.1
Cyanide (free)	0.2
Mercury	0.002
Selenium	0.05
Thallium	0.002

[1]MFL = million fibers per liter greater than ten (10) micrometers.

(e) For the inorganic chemicals listed in this section and nickel, the monitoring frequency is specified in section 4.1 of this rule and analytical methods are specified in section 4.2 of this rule.

(f) The commissioner hereby identifies the following as the best available technology, treatment technique, or other means available for achieving compliance with the MCLs for inorganic contaminants identified in subsections (a), (c), and (d), except fluoride:

BAT for Inorganic Chemicals Listed in This Section

Chemical Name	BATs
Antimony	2,7
Asbestos	2,3,8
Barium	5,6,7,9
Beryllium	1,2,5,6,7
Cadmium	2,5,6,7
Chromium	2,5,6[2],7
Cyanide	5,7,10
Mercury	2[1],4,6[1],7[1]
Nitrate	5,7,9
Nitrite	5,7
Selenium	1,2[3],6,7,9
Thallium	1,5

[1]BAT only if influent mercury concentrations less than ten (10) micrograms per liter.

[2]BAT for Chromium III only.

[3]BAT for Selenium IV only.

Key to BATs in Table

1 = Activated alumina

2 = Coagulation/filtration

3 = Direct and diatomite filtration

4 = Granular activated carbon
5 = Ion exchange
6 = Lime softening
7 = Reverse osmosis
8 = Corrosion control
9 = Electrodialysis
10 = Chlorine
11 = Ultraviolet

[As amended at: 21 IR 34.]

327 IAC 8-2-4.1 ----- Drinking water standards: collection of samples for inorganic chemical testing

(a) Community water systems shall conduct monitoring to determine compliance with the MCLs specified in section 4(a), 4(c), and 4(d) of this rule in accordance with this section. Nontransient noncommunity water systems shall conduct monitoring to determine compliance with the MCLs specified in section 4(a) and 4(d) of this rule in accordance with this section. Transient noncommunity water systems shall conduct monitoring to determine compliance with the MCLs specified in section 4(a) of this rule in accordance with this section.

(b) When a contaminant listed in section 4 of this rule exceeds the MCL, the supplier of water shall report to the commissioner under section 13 of this rule and shall give notice to the public under section 15 of this rule. Monitoring after public notification shall be at a frequency designated by the commissioner and shall continue until the MCL has not been exceeded in two (2) successive samples or until a monitoring schedule as a condition to a variance, exemption, or enforcement action shall become effective.

(c) Monitoring shall be conducted as follows:

(1) Ground water systems shall take a minimum of one (1) sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point) beginning in the compliance period starting January 1, 1993. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(2) Surface water systems, including systems with a combination of surface and ground sources, shall take a minimum of one (1) sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment (hereafter called a sampling point) beginning in the compliance period beginning January 1, 1993. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(3) If a system draws water from more than one (1) source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions, for example, when water is representative of all sources being used.

(4) The commissioner may reduce the total number of samples which must be analyzed by allowing the use of compositing. Composite samples from a maximum of five (5) samples are allowed, provided that the detection limit of the method used for analysis is less than one-fifth ($^1/5$) of the MCL. Compositing of samples must be completed in the laboratory as follows:

(A) When a composite sample is analyzed, if the concentration in the composite sample is greater than or equal to one-fifth ($^1/5$) of the MCL of any inorganic chemical, then a follow-up sample must be analyzed within fourteen (14) days at each sampling point included in the composite. These samples must be analyzed for the contaminants which exceeded one-fifth ($^1/_5$) of the MCL in the

composite sample. Detection limits for each analytical method and MCLs for each inorganic contaminant are the following:

Contaminant	MCL (mg/l)	Methodology	Detection Limit (mg/l)
Antimony	0.006	Atomic absorption; furnace	0.003
		Atomic absorption; platform	0.0008[5]
		ICP-mass spectrometry	0.0004
		Hydride-atomic absorption	0.001
Asbestos	7 MFL[1]	Transmission electron microscopy	0.01 MFL
Barium	2	Atomic absorption; furnace	0.002
		Atomic absorption; direct aspiration	0.1
		Inductively coupled plasma	0.002
			(0.001)
Beryllium	0.004	Atomic absorption; furnace	0.0002
		Atomic absorption; platform	0.00002[5]
		Inductively coupled plasma[2]	0.0003
		ICP-mass spectrometry	0.0003
Cadmium	0.005	Atomic absorption; furnace	0.0001
		Inductively coupled plasma	0.001
Chromium	0.1	Atomic absorption; furnace	0.001
		Inductively coupled plasma	0.007
			(0.001)
Cyanide	0.2	Distillation, spectrophotometric[3]	0.02
		Distillation, automated spectrophotometric [3]	0.005
		Distillation, selective electrode[3]	0.05
		Distillation, amenable, spectrophotometric[4]	0.02
Fluoride	4.0	Colorimetric SPADNS; with distillation	0.1
		Potentiometric ion selective electrode	0.1
		Automated alizarin fluoride blue; with distillation	0.05
		(complexone)	
		Automated ion selective electrode	0.1
Mercury	0.002	Manual cold vapor technique	0.0002
		Automated cold vapor technique	0.0002
Nitrate	10 (as N)	Manual cadmium reduction	0.01
		Automated hydrazine reduction	0.01
		Automated cadmium reduction	0.05
		Ion selective electrode	1
		Ion chromatography	0.01
Nitrite	1 (as N)	Spectrophotometric	0.01
		Automated cadmium reduction	0.05
		Manual cadmium reduction	0.01
		Ion chromatography	0.004
Selenium	0.05	Atomic absorption; furnace	0.002
		Atomic absorption; gaseous hydride	0.002
Thallium	0.002	Atomic absorption; furnace	0.001
		Atomic absorption; platform	0.0007[5]
		ICP-mass spectrometry	0.0003

[1]MFL = million fibers per liter greater than ten (10) micrometers.

[2]Using a 2x preconcentration step as noted in Method 200.7. Lower method detection limits may be achieved when using a 4x preconcentration.

[3]Screening method for total cyanides.

[4]Measures "free" cyanides.

[5]Lower method detection limits are reported using stabilized temperature graphite furnace atomic absorption.

(B) If the population served by the system is greater than three thousand three hundred (3,300) persons, then compositing may only be permitted by the commissioner at sampling points within a single system. In systems serving less than or equal to three thousand three hundred (3,300) persons, the commissioner may permit compositing among different systems provided the five (5) sample limit is maintained.

(C) If duplicates of the original sample taken from each sampling point used in the composite sample are available, the system may use these instead of resampling. The duplicate must be analyzed and the results reported to the commissioner within fourteen (14) days after completing analysis of the composite sample, provided the holding time of the sample is not exceeded.

(5) The frequency of monitoring for:

(A) asbestos shall be in accordance with subsection (d);

(B) antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, nickel, mercury, selenium, and thallium shall be in accordance with subsection (e);

(C) nitrate shall be in accordance with subsection (f);

(D) nitrite shall be in accordance with subsection (g); and

(E) arsenic shall be in accordance with subsection (l).

(d) The frequency of monitoring conducted to determine compliance with the MCL for asbestos specified in section 4(d) of this rule shall be conducted as follows:

(1) Each community and nontransient noncommunity water system is required to monitor for asbestos during the first three (3) year compliance period of each nine (9) year compliance cycle beginning in the compliance period starting January 1, 1993.

(2) If the system believes it is not vulnerable to either asbestos contamination in its source water or due to corrosion of asbestos-cement pipe, or both, it may apply to the commissioner for a waiver of the monitoring requirement in subdivision (1). If the commissioner grants the waiver, the system is not required to monitor.

(3) The commissioner may grant a waiver based upon a consideration of the following factors:

(A) Potential asbestos contamination of the water source.

(B) The use of asbestos-cement pipe for finished water distribution and the corrosive nature of the water.

(4) A waiver remains in effect for the initial monitoring of the first three (3) year compliance period. Systems not receiving a waiver must monitor in accordance with the provisions of subdivision (1).

(5) A system vulnerable to asbestos contamination due solely to corrosion of asbestos-cement pipe shall take one (1) sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

(6) A system vulnerable to asbestos contamination due solely to source water shall monitor in accordance with the provision of subsection (c).

(7) A system vulnerable to asbestos contamination due both to its source water supply and corrosion of asbestos-cement pipe shall take one (1) sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

(8) A system which exceeds the MCLs as determined in section 4 of this rule shall monitor quarterly beginning in the next quarter after the violation occurred.

(9) The commissioner may decrease the quarterly monitoring requirement to the frequency specified in subdivision (1) provided the commissioner has determined that the system is reliably and consistently below the MCL. In no case can the commissioner make this determination unless a ground water system takes a minimum of two (2) quarterly samples and a surface (or combined surface/ground) water system takes a minimum of four (4) quarterly samples.

(10) If monitoring data collected after January 1, 1990, are generally consistent with the requirements of this subsection, then the commissioner may allow systems to use that data to satisfy the monitoring requirement for the initial compliance period beginning January 1, 1993.

(e) The frequency of monitoring conducted for nickel and to determine compliance with the MCLs in section 4 of this rule for antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium shall be as follows:

(1) Ground water systems shall take one (1) sample at each sampling point during each compliance period. Surface water systems (or combined surface/ground) shall take one (1) sample annually at each sampling point.

(2) The system may apply to the commissioner for a waiver from the monitoring frequencies specified in subdivision (1).

(3) A condition of the waiver shall require that a system take a minimum of one (1) sample while the waiver is effective. The term during which the waiver is effective shall not exceed one (1) compliance cycle which is nine (9) years.

(4) The commissioner may grant a waiver provided surface water systems have monitored annually for at least three (3) years and ground water systems have conducted a minimum of three (3) rounds of monitoring. (At least one (1) sample shall have been taken since January 1, 1990.) Both surface and ground water systems shall demonstrate that all previous analytical results were less than the maximum contaminant level. Systems that use a new water source are not eligible for a waiver until three (3) rounds of monitoring from the new source have been completed. The commissioner may grant a public water system a waiver for monitoring of cyanide, provided that the commissioner determines that the system is not vulnerable due to lack of any industrial source of cyanide.

(5) In determining the appropriate reduced monitoring frequency, the commissioner shall consider the following:

(A) Reported concentrations from all previous monitoring.

(B) The degree of variation in reported concentrations.

(C) Other factors which may affect contaminant concentrations such as:

(i) changes in ground water pumping rates;

(ii) changes in the system's configuration;

(iii) changes in the system's operating procedures; or

(iv) changes in stream flows or characteristics.

(6) A decision by the commissioner to grant a waiver shall be made in writing and shall set forth the basis for the determination. The determination may be initiated by the commissioner or upon an application by the public water system. The public water system shall specify the basis for its request. The commissioner shall review and, where appropriate, revise the determination of the appropriate monitoring frequency when the system submits new monitoring data or when other data relevant to the system's appropriate monitoring frequency becomes available.

(7) Systems which exceed the MCLs as calculated in subsection (k) shall monitor quarterly beginning in the next quarter after the violation occurred.

(8) The commissioner may decrease the quarterly monitoring requirement to the frequencies specified in subdivisions (1) and (2) provided it has determined that the system is reliably and consistently below the MCL. In no case can the commissioner make this determination unless a ground water system takes a minimum of two (2) quarterly samples and a surface water system takes a minimum of four (4) quarterly samples.

(f) All public water systems (community, nontransient noncommunity, and transient noncommunity systems) shall monitor to determine compliance with the MCL for nitrate in section 4(a) of this rule under the following monitoring schedules:

(1) Community and nontransient noncommunity water systems served by ground water systems shall monitor annually beginning January 1, 1993; systems served by surface water shall monitor quarterly beginning January 1, 1993.

(2) For community and nontransient noncommunity water systems, the repeat monitoring frequency for ground water systems shall be quarterly for at least one (1) year following any one (1) sample in which the concentration is greater than or equal to fifty percent (50%) of the MCL. The commissioner may allow a ground water system to reduce the sampling frequency to annually after four (4) consecutive quarterly samples are reliably and consistently less than the MCL.

(3) For community and nontransient noncommunity water systems, the commissioner may allow a surface water system to reduce the sampling frequency to annually if all analytical results from four (4) consecutive quarters are less than fifty percent (50%) of the MCL. A surface water system shall return to quarterly monitoring if any one (1) sample is greater than or equal to fifty percent (50%) of the MCL.

(4) Each transient noncommunity water system shall monitor annually beginning January 1, 1993.

(5) After the initial round of quarterly sampling is completed, each community and nontransient noncommunity system which is monitoring annually shall take subsequent samples during the quarter which previously resulted in the highest analytical result.

(g) All public water systems (community, nontransient noncommunity, and transient noncommunity systems) shall monitor to determine compliance with the MCL for nitrite in section 4(a) of this rule under the following monitoring schedules:

(1) All public water systems shall take one (1) sample at each sampling point in the compliance period beginning January 1, 1993, and ending December 31, 1995.

(2) After the initial sample, systems where an analytical result for nitrite is less than fifty percent (50%) of the MCL shall monitor at the frequency specified by the commissioner.

(3) For community, nontransient noncommunity, and transient noncommunity water systems, the repeat monitoring frequency for any water system shall be quarterly for at least one (1) year following any one (1) sample in which the concentration is greater than or equal to fifty percent (50%) of the MCL. The commissioner may allow a system to reduce the sampling frequency from quarterly to annually after determining the system is reliably and consistently less than the MCL.

(4) Systems which are monitoring annually shall take each subsequent sample during the quarter which previously resulted in the highest analytical result.

(h) Confirmation sampling shall be as follows:

(1) Where the results of sampling for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, or thallium indicate the MCL has been exceeded, the commissioner may require that one (1) additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two (2) weeks) at the same sampling point.

(2) Where nitrate or nitrite sampling results indicate the MCL has been exceeded, the system shall take a confirmation sample within twenty-four (24) hours of the

system's receipt of notification of the analytical results of the first sample. Systems unable to comply with the twenty-four (24) hour sampling requirement must immediately notify the consumers served by the public water system in accordance with section 15 of this rule. Systems exercising this option must take and analyze a confirmation sample within two (2) weeks of notification of the analytical results of the first sample.

(3) If a commissioner-required confirmation sample is taken for any contaminant, the results of the initial and confirmation sample shall be averaged. The resulting average shall be used to determine the system's compliance in accordance with subsection (k). The commissioner has the discretion to delete results of obvious sampling errors.

(i) The commissioner may require more frequent monitoring than specified in subsections (d) through (g) or may require confirmation samples for positive and negative results.

(j) Systems may apply to the commissioner to conduct more frequent monitoring than the minimum monitoring frequencies specified in this section.

(k) Compliance with section 4 of this rule shall be determined based on the analytical results obtained at each sampling point in the following manner:

(1) For systems which are conducting monitoring at a frequency greater than annual, compliance with the MCLs for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, or thallium is determined by a running annual average at each sampling point. If the average at any sampling point is greater than the MCL, then the system is out of compliance. If any one (1) sample would cause the annual average to be exceeded, then the system is out of compliance immediately. Any sample below the method detection limit shall be calculated at zero (0) for the purpose of determining the annual average.

(2) For systems which are monitoring annually, or less frequently, the system is out of compliance with the MCLs for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, or thallium if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the commissioner, the determination of compliance will be based on the average of the two (2) samples.

(3) Compliance with the MCLs for nitrate and nitrite is determined based on one (1) sample if the levels of these contaminants are below the MCLs. If the levels of nitrate and/or nitrite exceed the MCLs in the initial sample, a confirmation sample is required in accordance with subsection (h)(2), and compliance shall be determined based upon the average of the initial and confirmation samples.

(4) If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the commissioner may allow the system to give public notice to only the area served by that portion of the system which is out of compliance.

(l) The frequency of monitoring conducted to determine compliance with the MCL for arsenic shall be as follows:

(1) Analyses for all community water systems utilizing surface water sources shall be sampled annually.

(2) Analyses for all community water systems utilizing only ground water sources shall be repeated at three (3) year intervals.

(3) The commissioner has the authority to determine compliance or initiate enforcement action based on analytical results.

(4) If the result of an analysis conducted as required in this section indicates that the results exceed the MCL as determined in section 4 of this rule, the supplier of water shall report to the state within seven (7) days and initiate three (3) additional analyses at the same sampling point within one (1) month.

(5) When the average of four (4) analyses made pursuant to this section, rounded to

the same number of significant figures as the MCL for the arsenic, exceeds the MCL, the supplier of water shall notify the commissioner and give notice to the public under section 16 of this rule. Monitoring after public notification shall be at a frequency set by the commissioner and shall continue until the MCL has not been exceeded in two (2) consecutive samples or until a monitoring schedule as a condition to a variance, exemption, or enforcement action shall become effective.

(m) Each public water system shall monitor at the time designated by the commissioner during each compliance period.

(n) Sample collection for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium under this section shall be conducted using the sample preservation, container, and maximum holding time procedures specified in the following table:

Contaminant	Preservative[3]	Container[1]	Time[2]
Antimony	HNO_3	P or G	6 months
Asbestos	4%C	P or G	48 hours[4]
Barium	HNO_3	P or G	6 months
Beryllium	HNO_3	P or G	6 months
Cadmium	HNO_3	P or G	6 months
Chromium	HNO_3	P or G	6 months
Cyanide	4%C, NaOH	P or G	14 days
Fluoride	none	P or G	1 month
Mercury	HNO_3	P or G	28 days
Nickel	HNO_3	P or G	6 months
Nitrate	4%C	P or G	48 hours[5]
Nitrate-Nitrite[6]	H_2SO_4	P or G	28 days
Nitrite	4%C	P or G	48 hours
Selenium	HNO_3	P or G	6 months
Thallium	HNO_3	P or G	6 months

[1]P = Plastic, hard or soft; G = glass.

[2]In all cases, samples should be analyzed as soon after collection as possible. Follow additional (if any) information on preservation, containers, or holding times that is specified in method.

[3]When indicated, samples must be acidified at the time of collection to pH < 2 with concentrated acid or adjusted with sodium hydroxide to pH > 12. When chilling is indicated the sample must be shipped and stored at four (4) degrees Celsius or less.

[4]Instructions for containers, preservation procedures, and holding times as specified in Method 100.2 must be adhered to for all compliance analyses including those conducted with Method 100.1.

[5]If the sample is chlorinated, the holding time for an unacidified sample kept at four (4) degrees Celsius is extended to fourteen (14) days.

[6]Nitrate-Nitrite refers to a measurement of total nitrate.

[As amended at: 24 IR 3946.]

327 IAC 8-2-4.2 ----- Drinking water standards: analytical methods for inorganic chemical testing

(a) Analyses conducted to determine compliance with section 4 of this rule shall be made in accordance with one (1) of the following methods for each contaminant:

(1) Antimony as follows:

(A) Atomic absorption; furnace, Method 3113B*.

(B) Atomic absorption; platform, Method 200.9*.

(C) ICP-mass spectrometry, Method 200.8*.
(D) Hydride-atomic absorption, Method D-3697-92*.
(2) Arsenic as follows:
(A) Atomic absorption; furnace, Method D-2972-93C* or Method 3113B*.
(B) Hydride-atomic adsorption, Method D-2972-93B* or Method 3114B*.
(C) Atomic absorption, platform, Method 200.9*.
(D) Inductively coupled plasma technique, Method 200.7* or Method 3120B*.
(E) ICP-mass spectrometry, Method 200.8*.
(3) Asbestos, transmission electron microscopy, Method 100.1* or Method 100.2*.
(4) Barium as follows:
(A) Atomic absorption; furnace, Method 3113B*.
(B) Atomic absorption; direct, Method 3111D*.
(C) Inductively coupled plasma, Method 200.7* or Method 3120B*.
(D) ICP-mass spectrometry, Method 200.8*.
(5) Beryllium as follows:
(A) Atomic absorption; furnace, Method D-3645-93B or Method 3113B.
(B) Atomic absorption; platform, Method 200.9*.
(C) Inductively coupled plasma, Method 200.7* or Method 3120B*.
(D) ICP-mass spectrometry, Method 200.8.
(6) Cadmium as follows:
(A) Atomic absorption; furnace, Method 3113B*.
(B) Inductively coupled plasma, Method 200.7*.
(C) ICP-mass spectrometry, Method 200.8*.
(D) Atomic absorption; platform, Method 200.9*.
(7) Chromium as follows:
(A) Atomic absorption; furnace, Method 3113B*.
(B) Inductively coupled plasma, Method 200.7* or Method 3120B*.
(C) ICP-mass spectrometry, Method 200.8*.
(D) Atomic absorption; platform, Method 200.9*.
(8) Cyanide as follows:
(A) Manual distillation followed by:
(i) Spectrophotometric; amenable, Method D-2036-91B* or Method 4500-CN^-G*.
(ii) Spectrophotometric; manual, Method D-2036-91A*, Method 4500-CN^-E*, or Method I-3300-85*.
(iii) Spectrophotometric; semiautomated, Method 335.4*.
(iv) Method 4500-CN^-C*.
(v) Method D-2036-91A*.
(B) Selective electrode, Method 4500-CN-F*.
(9) Fluoride as follows:
(A) Ion chromatography, Method 300.0*, Method D-4327-91*, or Method 4110B*.
(B) Manual distillation; color. SPADNS, Method 4500F^-B, D*.
(C) Manual electrode, Method D1179-93B* or Method 4500F^-C*.
(D) Automated electrode, Method 380-75WE*.
(E) Automated alizarin, Method 4500F^-E* or Method 129-71W*.
(10) Mercury as follows:

(A) Manual cold vapor, Method 245.1, Method D3223-91*, or Method 3112B*.

(B) Automated cold vapor, Method 245.2*.

(C) ICP-mass spectrometry, Method 200.8*.

(11) Nickel as follows:

(A) Atomic absorption; furnace, Method 3113B*.

(B) Atomic absorption; platform, Method 200.9.

(C) Atomic absorption; direct, Method 3111B*.

(D) Inductively coupled plasma, Method 200.7* Method 3120B*.

(E) ICP-mass spectrometry, Method 200.8*.

(12) Nitrate as follows:

(A) Manual cadmium reduction, Method D3867-90B* or Method 4500-NO_3-E*.

(B) Automated cadmium reduction, Method 353.2*, Method D3867-90A*, or Method 4500-NO_3-F*.

(C) Ion selective electrode, Method 4500-NO_3-D* or Method 601*.

(D) Ion chromatography, Method 300.0*, Method D4327-91*, Method 4110B*, or Method B-1011*.

(13) Nitrite as follows:

(A) Ion chromatography, Method 300.0*, Method D4327-91*, Method 4110B*, or Method B-1011*.

(B) Automated cadmium reduction, Method 353.2*, Method D3867-90A*, or Method 4500-NO_3-F*.

(C) Manual cadmium reduction, Method D3867-90B* or Method 4500-NO_3-E*.

(D) Spectrophotometric, Method 4500-NO_2-B*.

(14) Selenium as follows:

(A) Hydride-atomic absorption, Method D3859-93A* or Method 3114B*.

(B) ICP-mass spectrophotometry, Method 200.8*.

(C) Atomic absorption; platform, Method 200.9*.

(D) Atomic absorption; furnace, Method D3859-93B* or Method 3113B*.

(15) Thallium as follows:

(A) Atomic absorption; platform, Method 200.9*.

(B) ICP-mass spectrometry, Method 200.8*.

(b) Analysis under this section shall only be conducted by laboratories that have been certified by EPA or the commissioner. Laboratories may conduct sample analyses under provisional certification until January 1, 1996. To receive certification to conduct analyses for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium, the laboratory must do the following:

(1) Successfully analyze performance evaluation (PE) samples provided by EPA, the commissioner, or by a third party with approval of the EPA or the commissioner, at least once a year.

(2) For each contaminant that has been included in the PE sample and for each method for which the laboratory desires certification achieve quantitative results on the analyses that are within the following acceptance limits:

Contaminant	Acceptance Limit
Antimony	±30% at ž0.006 mg/l
Arsenic	2 standard deviations based on study statistics
Asbestos	2 standard deviations based on study statistics
Barium	±15% at ž0.15 mg/l
Beryllium	±15% at ž0.001 mg/l

Cadmium	±20% at ž0.002 mg/l
Chromium	±15% at ž0.01 mg/l
Cyanide	±25% at ž0.1 mg/l
Fluoride	±10% at ž1 to 10 mg/l
Mercury	±30% at ž0.0005 mg/l
Nickel	±15% at ž0.01 mg/l
Nitrate	±10% at ž0.4 mg/l
Nitrite	±15% at ž0.4 mg/l
Selenium	±20% at ž0.01 mg/l
Thallium	±30% at ž0.002 mg/l

*Methods referenced in this section may be obtained as follows:

(1) Method 245.2, "Methods for Chemical Analysis or Water and Wastes", EPA-600/4-79-020, March 1983, available at NTIS, PB84-128677.

(2) Methods 200.8, 200.9, 200.7, and 245.1 may be found in "Methods for the Determination of Metals in Environmental Samples_Supplement I", EPA-600/94-111, May 1994, available from NTIS, PB95-125472, 800-553-6847.

(3) Methods D-3697-92, D-2972-93C, D-2972-93B, D-3645-93B, D2036-91B, D2036-91A, D4327-91, D1179-93B, D3223-91, D3867-90A, D3867-90B, D3859-93A, and D3859-93B, may be found in "Annual Book of ASTM Standards", 1994 and 1996, Vols. 11.01 and 11.02, American Society for Testing and Materials, available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

(4) Methods 3113B, 3120B, 3114B, 3111D, 4500-CN^-C, 4500-CN^-G, 4500-CN^-E, 4500-CN^-F, 4110B, 4500F^-B, D, 4500F^-C, 4500F^-E, 3112B, 3111B, 4500-NO_3-F, 4500-NO_3-D, 4500-NO_3-E, and 4500-NO_2-B may be found in "18th Edition of Standard Methods for the Examination of Water and Wastewater", 1992, or "19th Edition of Standard Methods for the Examination of Water and Wastewater", 1995, American Public Health Association, available from the American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005. Either edition may be used.

(5) Method I-3300-85 may be found in Techniques of Water Resources Investigation of the U.S. Geological Survey, Book 5, Chapter A-1, 3rd Edition, 1989, available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, Colorado 80225-0425.

(6) Methods 335.4, 300.0, and 353.2 may be found in "Methods for the Determination of Inorganic Substances in Environmental Samples", EPA-600/R-93-100, August 1993, available from NTIS, PB94-120821.

(7) Method 601 may be found in Technical Bulletin 601 "Standard Method of Test for Nitrate in Drinking Water", July 1994, PN 221890-001, Analytical Technology, Inc., available from ATI Orion, 529 Main Street, Boston, Massachusetts 02129.

(8) Method B-1011 may be found in "Waters Test Method for Determination of Nitrate/Nitrite in Water Using Single Column Ion Chromatography", August 1987, available from Waters Corporation, 34 Maple Street, Milford, Massachusetts 01757.

(9) Method 100.1 may be found in "Analytical Methods for Determination of Asbestos Fibers in Water", EPA-600/4-83-043, EPA, September 1983, available from NTIS, PB83-260471.

(10) Method 100.2 may be found in "Determination of Asbestos Structure Over 10-&m in Length in Drinking Water", EPA- 600/R-94-134, June 1994, available from NTIS, PB94-201902.

(11) Method 129-71W may be found in "Fluoride in Water and Wastewater", December 1972, Technicon Industrial Systems, available from Bran & Luebbe, 1025 Busch Parkway, Buffalo Grove, Illinois 60089.

(12) Method 380-75WE may be found in "Fluoride in Water and Wastewater", February 1976, Technicon Industrial Systems, available from Bran & Luebbe, 1025 Busch Parkway, Buffalo Grove, Illinois 60089.

These methods are also available for copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

[As amended at: 24 IR 3951.]

327 IAC 8-2-5 ------- Drinking water standards: organic chemicals other than volatile compounds; maximum contaminant levels

(a) The MCLs for the following synthetic organic chemicals apply to all community water systems and nontransient noncommunity water systems, except as provided in subsection (c) for total trihalomethanes:

Contaminant	Level in Milligrams Per Liter
Total trihalomethanes (the sum of the concentrations of bromodichloromethane, dibromochloromethane, tribromomethane (bromoform), and trichloromethane (chloroform))	0.10

CAS No.	Contaminant	MCL (mg/l)
15972-60-8	Alachlor	0.002
1912-24-9	Atrazine	0.003
50-32-8	Benzo[a]pyrene	0.0002
1563-66-2	Carbofuran	0.04
57-74-9	Chlordane	0.002
75-99-0	Dalapon	0.2
96-12-8	1,2-dibromo-3-chloropropane (DBCP)	0.0002
103-23-1	Di(2-ethylhexyl)adipate	0.4
117-81-7	Di(2-ethylhexyl)phthalate	0.006
88-85-7	Dinoseb	0.007
85-00-7	Diquat	0.02
94-75-7	2,4-D	0.07
145-73-3	Endothall	0.1
72-20-8	Endrin	0.002
106-93-4	Ethylene dibromide	0.00005
1071-53-6	Glyphosate	0.7
76-44-8	Heptachlor	0.0004
1024-57-3	Heptachlor epoxide	0.0002
118-74-1	Hexachlorobenzene	0.001
77-47-4	Hexachlorocyclopentadiene	0.05
58-89-9	Lindane	0.0002
72-43-5	Methoxychlor	0.04
23135-22-0	Oxamyl (vydate)	0.2
1918-02-1	Picloram	0.5
1336-36-3	Polychlorinated biphenyls	0.0005
87-86-5	Pentachlorophenol	0.001

122-34-9	Simazine	0.004
8001-35-2	Toxaphene	0.003
1746-01-6	2,3,7,8-TCDD (dioxin)	3×10^{-8}
93-72-1	2,4,5-TP	0.05

(b) For the synthetic organic chemicals listed in this section other than total trihalomethanes, monitoring frequency is specified in section 5.1 of this rule, and analytical methods are specified in section 5.2 of this rule.

(c) The MCL for total trihalomethanes listed in this section applies only to community water systems which serve a population of ten thousand (10,000) or more individuals and which add a disinfectant (oxidant) to the water in any part of the drinking water treatment process. Compliance with the MCL for total trihalomethanes is calculated under section 5.3 of this rule.

(d) The commissioner hereby identifies, as indicated in the following table, granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OX) as the best technology, treatment technique, or other means available for achieving compliance with the MCL for synthetic organic contaminants identified in subsection (a):

BAT for Synthetic Organic Contaminants
Listed in Subsection (a)

CAS No.	Contaminant	GAC	PTA	OX
15972-60-8	Alachlor	X		
1912-24-9	Atrazine	X		
50-32-8	Benzo[a]pyrene	X		
1563-66-2	Carbofuran	X		
57-74-9	Chlordane	X		
94-75-7	2,4-D	X		
75-99-0	Dalapon	X		
96-12-8	1,2-dibromo-3-chloropropane (DBCP)	X	X	
103-23-1	Di(2-ethylhexyl)adipate	X	X	
117-81-7	Di(2-ethylhexyl)phthalate	X		
88-85-7	Dinoseb	X		
85-00-7	Diquat	X		
145-73-3	Endothall	X		
72-20-8	Endrin	X		
106-93-4	Ethylene dibromide (EDB)	X	X	
1071-53-6	Glyphosate<01.2 Body text>	X		
76-44-8	Heptachlor	X		
1024-57-3	Heptachlor epoxide	X		
118-74-1	Hexachlorobenzene	X		
77-47-3	Hexachlorocyclopentadiene	X	X	
58-89-9	Lindane	X		
72-43-5	Methoxychlor	X		
23135-22-0	Oxamyl (vydate)	X		
1918-02-1	Picloram	X		
1336-36-3	Polychlorinated biphenyls (PCBs)	X		
87-86-5	Pentachlorophenol	X		
93-72-1	2,4,5-TP (silvex)	X		
122-34-9	Simazine	X		

1746-01-6	2,3,7,8-TCDD (dioxin)	X	
8001-35-2	Toxaphene	X	X

[As amended at 21 IR 43.]

327 IAC 8-2-5.1 ----- Drinking water standards: collection of samples for organic chemical testing other than volatile organic compounds and total trihalomethanes

To determine compliance with section 5(a) of this rule, collection of samples for organic chemical testing, other than volatile organic compounds and total trihalomethanes, shall be made as follows:

(1) Ground water systems shall take a minimum of one (1) sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(2) Surface water systems, including those systems with a combination of surface and ground sources, shall take a minimum of one (1) sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(3) If the system draws water from more than one (1) source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions such as when water representative of all sources is being used.

(4) The monitoring frequency is as follows:

(A) Each community and nontransient noncommunity water system shall take four (4) consecutive quarterly samples for each contaminant listed in section 5(a) of this rule during each compliance period beginning with the initial compliance period.

(B) Systems serving more than three thousand three hundred (3,300) persons which do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of two (2) quarterly samples in one (1) year during each repeat compliance period.

(C) Systems serving less than or equal to three thousand three hundred (3,300) persons which do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of one (1) sample during each repeat compliance period.

(5) Each community and nontransient noncommunity water system may apply to the commissioner for a waiver from the requirement of subdivision (4). A system must reapply for a waiver for each compliance period.

(6) The commissioner may grant a waiver after evaluating the knowledge of previous use, including transport, storage, or disposal of the contaminant within the watershed or zone of influence of the system. If a determination by the commissioner reveals no previous use of the contaminant within the watershed or zone of influence, a waiver may be granted. If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver is granted:

(A) Previous analytical results.

(B) The proximity of the system to a potential point or nonpoint source of contamination. (Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or

treatment facilities. Nonpoint sources include the use of pesticides to control insect and weed pests on agricultural areas, forest lands, home and gardens, and other land application uses).

(C) The environmental persistence and transport of the pesticide or polychlorinated biphenyls (PCBs).

(D) How well the water source is protected against contamination due to such factors as:

(i) depth of the well;

(ii) the type of soil; and

(iii) the integrity of the well casing.

(E) Elevated nitrate levels at the water supply source.

(F) Use of PCBs in equipment used in the production, storage, or distribution of water, including, but not limited to, PCBs used in pumps or transformers.

(7) If an organic contaminant listed in section 5(a) of this rule is detected as defined by subdivision (16), in any sample, then the monitoring requirements are as follows:

(A) Each system must monitor quarterly at each sampling point which resulted in a detection.

(B) The commissioner may decrease the quarterly monitoring requirement specified in clause (A) provided it has determined that the system is reliably and consistently below the MCL. In no case shall the commissioner make this determination unless a ground water system takes a minimum of two (2) quarterly samples and a surface water system takes a minimum of four (4) quarterly samples.

(C) After the commissioner determines the system is reliably and consistently below the MCL, the commissioner may allow the system to monitor annually. Systems which monitor annually must monitor during the quarter that previously yielded the highest analytical result.

(D) Systems which have three (3) consecutive annual samples with no detection of contaminant may apply to the commissioner for a waiver as specified in subdivision (6).

(E) If monitoring results in detection of one (1) or more of certain related contaminants (aldicarb, aldicarb sulfoxide, aldicarb sulfone, heptachlor, and heptachlor epoxide), then subsequent monitoring shall include analyses for all related contaminants.

(8) Systems which violate the requirements of section 5(a) of this rule as determined by subdivision (11) must monitor quarterly. After a minimum of four (4) quarterly samples shows the system is in compliance and the commissioner determines the system is reliably and consistently below the MCL, as specified in subdivision (11), the system shall monitor at the frequency specified in subdivision (7)(C).

(9) The commissioner may require a confirmation sample for positive or negative results. If a confirmation sample is required by the commissioner, the result must be averaged with the first sampling result and the average used for the compliance determination as specified in subdivision (11). The commissioner has the discretion to delete results of obvious sampling errors from this calculation.

(10) The commissioner may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five (5) sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth ($^1/5$) of the MCL. Compositing of samples must be done in the laboratory and analyzed within fourteen (14) days of sample collection.

(A) When a composite sample is analyzed, if the concentration in the composite sample detects one (1) or more contaminants listed in section 5(a) of this rule,

then a follow-up sample must be analyzed within fourteen (14) days from each sampling point included in the composite and analyzed for that contaminant.

(B) If duplicates of the original sample taken from each sampling point used in the composite samples are available, the system may use these instead of resampling. The duplicates must be analyzed and the results reported to the commissioner within fourteen (14) days after completion of the composite analysis or before the holding time for the initial sample is exceeded, whichever is sooner.

(C) If the population served by the system is greater than three thousand three hundred (3,300) persons, then compositing may only be permitted by the commissioner at sampling points within a single system. In systems serving less than or equal to three thousand three hundred (3,300) persons, the commissioner may permit compositing among different systems provided the five (5) sample limit is maintained.

(11) Compliance with section 5(a) of this rule shall be determined based on the analytical results obtained at each sampling point in the following manner:

(A) For systems which are conducting monitoring at a frequency greater than annual, compliance is determined by a running annual average of all samples taken at each sampling point. If the annual average of any sampling point is greater than the MCL, then the system is out of compliance. If the initial sample or a subsequent sample would cause the annual average to be exceeded, then the system is out of compliance immediately. Any samples below the detection limit shall be calculated as zero (0) for purposes of determining the annual average.

(B) If monitoring is conducted annually, or less frequently, the system is out of compliance if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the commissioner, the determination of compliance will be based on the average of two (2) samples.

(C) If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the commissioner may allow the system to give public notice to only that portion of the system which is out of compliance.

(12) If monitoring data collected after January 1, 1990, are generally consistent with the requirements of this section and section 5.2 of this rule, then the commissioner may allow systems to use that data to satisfy the monitoring requirement for the initial compliance period.

(13) The commissioner may increase the required monitoring frequency, where necessary, to detect variations within the system such as fluctuations in concentration due to seasonal use and changes in water source.

(14) The commissioner has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by the commissioner's sanctioned representatives or agencies, or both.

(15) Each public water system shall monitor at the time designated by the commissioner within each compliance period.

(16) Method detection levels for contaminants listed in section 5(a) of this rule are as follows:

Contaminant	Detection Limit
(mg/l)	
Alachlor	0.0002
Atrazine	0.0001
Benzo[a]pyrene	0.00002

Carbofuran	0.0009
Chlordane	0.0002
Dalapon	0.001
1,2-dibromo-3-chloropropane (DBCP)	0.00002
Di(2-ethylhexyl)adipate	0.0006
Di(2-ethylhexyl)phthalate	0.0006
Dinoseb	0.0002
Diquat	0.0004
2,4-D	0.0001
Endothall	0.009
Endrin	0.00001
Ethylene dibromide (EDB)	0.00001
Glyphosate	0.006
Heptachlor	0.00004
Heptachlor epoxide	0.00002
Hexachlorobenzene	0.0001
Hexachlorocyclopentadiene	0.0001
Lindane	0.00002
Methoxychlor	0.0001
Oxamyl	0.002
Picloram	0.0001
Polychlorinated biphenyls (PCBs) (as decachlorobiphenyl)	0.0001
Pentachlorophenol	0.00004
Simazine	0.00007
Toxaphene	0.001
2,3,7,8-TCDD (dioxin)	0.000000005
2,4,5-TP (silvex)	0.0002

[As amended at: 24 IR 3953.]

327 IAC 8-2-5.2 ----- Drinking water standards: analytical methods for organic chemical testing other than volatile organic compounds and total trihalomethanes

(a) Analysis for the contaminants listed in section 5(a) of this rule shall be conducted using the following EPA methods or their equivalent as approved by EPA established as follows:

(1) Dioxin, as described in Method 1613*.

(2) 2,4-D[3] (as acid, salts, and esters), as described in Method 515.2, Rev 1.1*, Method 555*, Method 515.1*, Method 515.3*, or Method D5317-93*.

(3) 2,4,5-TP[3] (silvex), as described in Method 515.2, Rev 1.1*, Method 555*, Method 515.1*, Method 515.3*, or Method D5317-93*.

(4) Alachlor[1], as described in Method 505, Rev 2.1*, Method 507, Rev 2.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.

(5) Atrazine[1], as described in Method 505, Rev 2.1*, Method 507, Rev 2.1*, Method 525.1*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.

(6) Benzo(a)pyrene, as described in Method 525.2, Rev 2.0*, Method 550*, or Method 550.1*.

(7) Carbofuran, as described in Method 531.1, Rev 3.1*, or Method 6610*.

(8) Chlordane, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, or Method 508.1, Rev 2.0*.

(9) Dalapon, as described in Method 552.1, Rev 1.0*, Method 515.1*, Method 552.2, Rev 1.0*, or Method 515.3*.

(10) Di(2-ethylhexyl)adipate, as described in Method 506, Rev 1.1* or Method 525.2, Rev 2.0*.

(11) Di(2-ethylhexyl)phthalate, as described in Method 506, Rev 1.1* or Method 525.2, Rev 2.0*.

(12) Dibromochloropropane (DBCP), as described in Method 504.1, Rev 1.1* or Method 551.1, Rev 1.0*.

(13) Dinoseb[3], as described in Method 515.2, Rev 1.1*, Method 555*, Method 515.1*, or Method 515.3*.

(14) Diquat, as described in Method 549.2*.

(15) Endothall, as described in Method 548.1*.

(16) Endrin, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.

(17) Ethylene dibromide (EDB), as described in Method 504.1, Rev 1.1* or Method 551.1, Rev 1.0*.

(18) Glyphosate, as described in Method 547* or Method 6651*.

(19) Heptachlor, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.

(20) Heptachlor epoxide, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.

(21) Hexachlorobenzene, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.

(22) Hexachlorocyclopentadiene, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.

(23) Lindane, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.1*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.

(24) Methoxychlor, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.1*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.

(25) Oxymyl, as described in Method 531.1, Rev 3.1* or Method 6610*.

(26) PCBs[1]:

(A) as decachlorobiphenyl, as described in Method 508A*; or

(B) as arochlors, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, or Method 508.1, Rev 2.0*.

(27) Pentachlorophenol, as described in Method 515.2, Rev 1.1*, Method 525.2, Rev 2.0*, Method 555*, Method 515.1*, Method 515.3*, or Method D5317-93*.

(28) Picloram[3], as described in Method 515.2, Rev 1.1*, Method 555*, Method 515.1*, Method 515.3* or Method D5317- 93*.

(29) Simazine[1], as described in Method 505, Rev 2.1*, Method 507, Rev 2.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.

(30) Toxaphene, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, or Method 508.1, Rev 2.0*.

[1]Substitution of the detector specified in Method 505, Rev2.1, Method 507, Rev 2.1, Method 508, Rev 3.1, or Method 508.1, Rev 3.0 for the purpose of achieving lower detection limits is allowed as follows. Either an electron capture or nitrogen phosphorus detector may be

used provided all regulatory requirements and quality control criteria are met.

[2]PCBs are qualitatively identified as Arochlors and measured for compliance purposes as decachlorobiphenyl. Users of Method 505, Rev 2.1 may have more difficulty in achieving the required detection limits than users of Method 508.1, Rev 2.0, Method 525.2, Rev 2.0 or Method 508, Rev 3.1.

[3]Accurate determination of the chlorinated esters requires hydrolysis of the sample as described in Method 515.1, Method 515.2, Rev 1.1, Method 515.3, Method 555, and Method D5317-93.

(b) Analysis for PCBs shall be conducted as follows using the methods in subsection (a):

(1) Each system which monitors for PCBs shall analyze each sample using either Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 508.1, Rev 2.0*, or Method 525.2, Rev 2.0*. Users of Method 505, Rev 2.1 may have more difficulty in achieving the required Arochlor detection limits than users of Method 508.1, Rev 2.0, Method 525.2, Rev 2.0 or Method 508, Rev 3.1.

(2) If PCBs (as one (1) of seven (7) arochlors) are detected, as designated as follows, in any sample analyzed using Method 505, Rev 2.1* or Method 508, Rev 3.1*, the system shall reanalyze the sample using Method 508A* to quantitate PCBs (as decachlorobiphenyl):

Arochlor	Detection Limit (mg/l)
1016	0.00008
1221	0.02
1232	0.0005
1242	0.0003
1248	0.0001
1254	0.0001
1260	0.0002

(3) Compliance with the PCB maximum contaminant level shall be determined based upon the quantitative results of analyses using Method 508A*.

(c) Analysis under this section shall only be conducted by laboratories that have received certification by EPA or the commissioner and have met the following conditions:

(1) Successfully analyze performance evaluation (PE) samples provided by the EPA, the commissioner, or by a third party with the approval of the EPA or the commissioner, at least once per year by each method for which the laboratory desires certification.

(2) For each contaminant that has been included in the PE sample achieve quantitative results on the analyses that are within the following acceptance limits:

Contaminant	Acceptance Limits (Percent)
DBCP	±40
EDB	±40
Alachlor	±45
Atrazine	±45
Benzo(a)pyrene	2 standard deviations
Carbofuran	±45
Chlordane	±45
Dalapon	2 standard deviations
Di(2-ethylhexyl)adipate	2 standard deviations
Di(2-ethylhexyl)phthalate	2 standard deviations
Dinoseb	2 standard deviations
Diquat	2 standard deviations

Endothall	2 standard deviations
Endrin	±30
Glyphosate	2 standard deviations
Heptachlor	±45
Heptachlor epoxide	±45
Hexachlorobenzene	2 standard deviations
Hexachlorocyclopentadiene	2 standard deviations
Lindane	±45
Methoxychlor	±45
Oxamyl	2 standard deviations
PCBs (as decachlorobiphenyl)	0-200
Picloram	2 standard deviations
Simazine	2 standard deviations
Toxaphene	±45
Pentachlorophenol	±50
2,3,7,8-TCDD (dioxin)	2 standard deviations
2,4-D	±50
2,4,5-TP (silvex)	±50

*The methods referenced in this section may be obtained as follows:

(1) Method 508A and Method 515.1 may be found in "Methods for the Determination of Organic Compounds in Drinking Water", EPA-600/4-88-039, December 1988, revised July 1991, available from NTIS, PB91-231480, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(2) Methods 547, 550, and 550.1 may be found in "Methods for the Determination of Organic Compounds in Drinking Water_Supplement I", EPA-600-4-90-020, July 1990, available from NTIS, PB91-146027, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(3) Methods 548.1, 549.1, 552.1, and 555 may be found in "Methods for the Determination of Organic Compounds in Drinking Water_Supplement II", EPA-600/R-92-129, August 1992, available from NTIS, PB92-207703, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(4) Methods 504.1, Rev 1.1, 505, Rev 2.1, 506, Rev 1.1, 507, Rev 2.1, 508, Rev 3.1, 508.1, Rev 2.0, 515.2, Rev 1.1, 525.2, Rev 2.0, 531.1, Rev 3.1, 551.1, Rev 1.0, and 552.2, Rev 1.0 may be found in "Methods for the Determination of Organic Compounds in Drinking Water - Supplement III", EPA-600/R-95-131, August 1995, available from NTIS, PB95-261616, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(5) Method 1613 may be found in "Tetra-through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS", EPA 821-B-94-005, October 1994, available from NTIS, PB95-104774, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(6) Method 6651 may be found in "18th Edition of Standard Methods for the Examination of Water and Wastewater" and "19th Edition of Standard Methods for the Examination of Water and Wastewater", 1992 and 1995, American Public Health Association, available from the American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005. Either edition may be used.

(7) Method 6610 may be found in "Supplement to the 18th Edition of Standard Methods for Water and Wastewater" or "19th Edition of Standard Methods for the Examination of Water and Wastewater", 1994 and 1995, American Public Health Association, available from the National Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005. Either publication may be used.

(8) Other required analytical test procedures germane to the conduct of these analyses are contained in "Technical Notes of Drinking Water Methods", EPA/600/R-94-173, October 1994, available from NTIS, PB95-104766, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(9) EPA Methods 515.3 and 549.2 are available from U.S. EPA National Exposure Research Laboratory (NERL), 26 West Martin Luther King Drive, Cincinnati, Ohio 45268; the phone number is (513) 569-7586.

(10) Method D5317-93 may be found in the "Annual Book of ASTM Standards", 1996, Vol. 11.02, available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428. Method D5317-93 may also be found in any other edition of the "Annual Book of ASTM Standards" published from 1993 until the effective date of this rule.

These methods are available for copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

[As amended at: 24 IR 3955.]

327 IAC 8-2-5.3 ----- Drinking water standards: collection of samples for total trihalomethanes testing; community water systems

(a) To determine compliance with section 5 of this rule, each community water system which serves ten thousand (10,000) or more individuals and which adds a disinfectant (oxidant) to the water in any part of the drinking water treatment process shall collect and analyze samples for total trihalomethanes (TTHM) in accordance with this section. The minimum number of samples required to be taken by the system shall be based on the number of treatment plants used by the system, except that multiple wells drawing raw water from a single aquifer may, with the commissioner's approval, be considered one (1) treatment plant for determining the minimum number of samples. All samples taken within an established frequency shall be collected within a twenty-four (24) hour period.

(b) The requirements of subsection (a) apply as follows:

(1) Community water systems which utilize surface water sources in whole or in part, and community water systems which utilize only ground water sources and which have not been determined by the commissioner to qualify for the monitoring requirements of subsection (c) shall analyze for TTHM at quarterly intervals on at least four (4) water samples for each treatment plant used by the system. At least twenty-five percent (25%) of the samples shall be taken at locations within the distribution system reflecting the maximum residence time of the water in the system. The remaining seventy-five percent (75%) shall be taken at representative locations in the distribution system, taking into account number of persons served, different sources of water, and different treatment methods employed. The results of all analyses per quarter shall be arithmetically averaged and reported to the commissioner within thirty (30) days of the system's receipt of such results. All samples collected shall be used in the computation of the average, unless the analytical results are invalidated for technical reasons. Sampling and analyses shall be conducted in accordance with the methods listed in subsection (e).

(2) Upon the written request of a community water system, the monitoring frequency required by subdivision (1) may be reduced by the commissioner to a minimum of one (1) sample analyzed for TTHM per quarter taken at a point in the distribution system reflecting the maximum residence time of the water in the system. Upon a written determination by the commissioner that the data from at least one (1) year of monitoring in accordance with subdivision (1) and local conditions demonstrate that TTHM concentrations will be consistently below the MCL.

(3) If, at any time during which the reduced monitoring frequency prescribed under this section applies, the results from any analysis exceed ten-hundredths (0.10) milligram per liter of TTHM and such results are confirmed by at least one (1) check sample taken promptly after such results are received, or if the system makes

any significant change to its source of water or treatment program, the system shall immediately begin monitoring in accordance with the requirements of subdivision (1) which monitoring shall continue for at least one (1) year before the frequency may be reduced again. At the discretion of the commissioner, a system's monitoring frequency shall be increased above the minimum in those cases where it is necessary to detect variations of TTHM levels within the distribution system.

(c) Monitoring frequency required by this section may only be reduced as follows:

(1) Upon written request to the commissioner, a community water system utilizing only ground water sources may seek to have the monitoring frequency required by subsection (a) reduced to a minimum of one (1) sample for maximum TTHM potential per year for each treatment plant used by the system taken at a point in the distribution system reflecting maximum residence time of the water in the system. The system shall submit, to the commissioner, the results of at least one (1) sample analyzed for maximum TTHM potential using the procedure specified in subsection (g). A sample must be analyzed from each treatment plant used by the system and be taken at a point in the distribution system reflecting the maximum residence time of the water in the system. The system's monitoring frequency may only be reduced upon a written determination by the commissioner that, based upon the data submitted by the system, the system has a maximum TTHM potential of less than ten-hundredths (0.10) milligram per liter and that, based upon an assessment of the local condition of the system, the system is not likely to approach or exceed the MCL for total TTHMs. The results of all analyses shall be reported to the commissioner within thirty (30) days of the system's receipt of such results. All samples collected shall be used for determining whether the system must comply with the monitoring requirements of subsection (a) unless the analytical results are invalidated for technical reasons. Sampling and analyses shall be conducted in accordance with the methods listed in subsection (e).

(2) If, at any time during which the reduced monitoring frequency prescribed under subdivision (1) applies, the results from any analysis taken by the system for maximum TTHM potential are equal to or greater than ten-hundredths (0.10) milligram per liter, and such results are confirmed by at least one (1) check sample taken promptly after such results are received, the system shall immediately begin monitoring in accordance with the requirements of subsection (b) and such monitoring shall continue for at least one (1) year before the frequency may be reduced again. In the event of any significant change to the system's source of water or treatment program, the system shall immediately analyze an additional sample for maximum TTHM potential taken at a point in the distribution system reflecting maximum residence time of the water in the system for the purpose of determining whether the system must comply with monitoring requirements of subsection (b). At the discretion of the commissioner, monitoring frequencies may and should be increased above the minimum in those cases where this is necessary to detect variation of TTHM levels within the distribution system.

(d) Compliance with section 5 of this rule for TTHM shall be determined based on a running annual average of quarterly samples collected by the system as prescribed in subsection (b)(1) or (b)(2). If the average of samples covering any four (4) consecutive quarterly periods exceeds the MCL, the supplier of water shall report to the commissioner under section 13 of this rule and notify the public under section 15 of this rule. Monitoring after public notification shall be at a frequency designated by the commissioner and shall continue until a monitoring schedule as a condition to a variance, exemption, or enforcement action shall become effective.

(e) Samples for TTHM shall be dechlorinated upon collection to prevent further production of trihalomethanes according to the procedures described in the methods, except acidification is not required if only TTHMs or THMs are to be determined. Samples for maximum TTHM potential should not be dechlorinated and should be held for seven (7) days at twenty-five (25) degrees Celsius or above prior to analysis. Analyses made under this section shall be conducted by one (1) of the following U.S. EPA approved methods:

(1) Method 502.2*, Rev 2.1*.

(2) Method 524.2*.

(3) Method 551.1*.

(f) Before a community water system makes any significant modifications to its existing treatment process for the purpose of achieving compliance with the MCL established in section 5(a) of this rule, such system must submit and obtain the commissioner's approval of a detailed plan setting forth its proposed modification and those safeguards that it will implement to ensure that the bacteriological quality of the drinking water served by such system will not be adversely affected by such modification. Each system shall comply with the provisions set forth in the approved plan. At a minimum, a plan approved by the commissioner shall require the system modifying its disinfection practice to do the following:

(1) Evaluate the water system for sanitary defects and evaluate the source water for biological quality.

(2) Evaluate its existing treatment practices and consider improvements that will minimize disinfectant demand and optimize finished water quality throughout the distribution system.

(3) Provide baseline water quality survey data of the distribution system. Such data should include the results from monitoring for coliform and fecal coliform bacterial, fecal streptococci, standard plate counts at thirty-five (35) degrees Celsius and twenty (20) degrees Celsius, phosphate, ammonia nitrogen, and total organic carbon. Virus studies should be required where source waters are heavily contaminated with sewage effluent.

(4) Conduct additional monitoring to assure continued maintenance of optimal biological quality in finished water, for example, when chloramines are introduced as disinfectants or when prechlorination is being discontinued. Additional monitoring may also be required by the commissioner for chlorate, chlorite, and chlorine dioxide when chlorine dioxide is used. Standard plate count analysis may also be required by the commissioner as appropriate before and after any modifications.

(5) Consider inclusion in the plan provisions to maintain an active disinfectant residual throughout the distribution system at all times during and after modification.

(g) The water sample for determination of maximum trihalomethane potential is taken from a point in the distribution system that reflects maximum residence time. Procedures for sample collection and handling are given in the methods. No reducing agent is added to quench the chemical reaction producing THMs at the time of sample collection. The intent is to permit the levels of THM precursors to be depleted and the concentration of THMs to be maximized for the supply to be tested. Four (4) experimental parameters affecting maximum THM production are pH, temperature, reaction time, and the presence of a disinfectant residual. These parameters are dealt with as follows:

(1) Measure the disinfectant residual at the selected sampling point. Proceed only if a measurable disinfectant residual is present.

(2) Collect triplicate forty (40) milliliter water samples at the pH prevailing at the time of sampling and prepare a method blank according to the methods.

(3) Seal and store these samples together for seven (7) days at twenty-five (25) degrees Celsius or above.

(4) After this time period, open one (1) of the sample containers and check for disinfectant residual. Absence of a disinfectant residual invalidates the sample for further analysis. Once a disinfectant residual has been demonstrated, open another of the sealed samples and determine total THM concentration using a method specified in subsection (e).

*The methods referenced in this section may be obtained as follows:

(1) Method 502.2, Rev 2.1 may be found in "Methods for the Determination of Organic Compounds in Drinking Water Supplement III", EPA/600/R-95-131, Au-

gust 1995, available from NTIS, PB95-261616, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(2) Method 551.1 may be found in "Methods for the Determination of Organic Compounds in Drinking Water–Supplement III", EPA/600/R-95-131, August 1995, available from NTIS, PB95-261616, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(3) Method 524.2 may be found in "Methods for the Determination of Organic Compounds in Drinking Water–Supplement II", EPA-600/R-92-129, August 1992, available from NTIS, PB92-207703, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

These methods are available for copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

[As amended at: 24 IR 3958.]

327 IAC 8-2-5.4 ----- Drinking water standards: volatile organic compounds; maximum contaminant levels for community water systems and nontransient noncommunity water systems

(a) The following MCLs for volatile organic compounds (VOCs) apply to community water systems and nontransient noncommunity water systems:

CAS No.	Contaminant	Level in Milligrams Per Liter
71-43-2	Benzene	0.005
75-01-4	Vinyl chloride	0.002
56-23-5	Carbon tetrachloride	0.005
107-06-2	1,2-dichloroethane	0.005
79-01-6	Trichloroethylene	0.005
75-35-4	1,1-dichloroethylene	0.007
71-55-6	1,1,1-trichloroethane	0.2
106-46-7	para-dichlorobenzene	0.075
156-59-2	cis-1,2-dichloroethylene	0.07
78-87-5	1,2-dichloropropane	0.005
100-41-4	Ethylbenzene	0.7
108-90-7	Monochlorobenzene	0.1
95-50-1	ortho-dichlorobenzene	0.6
100-42-5	Styrene	0.1
127-18-4	Tetrachloroethylene	0.005
108-88-3	Toluene	1
156-60-5	trans-1,2-dichloroethylene	0.1
1330-20-7	Xylenes (total)	10
75-09-2	Dichloromethane	0.005
120-82-1	1,2,4-trichlorobenzene	0.07
79-00-5	1,1,2-trichloroethane	0.005

(b) BAT for achieving compliance with the MCL for the volatile organic compounds listed in subsection (a) is:

(1) central treatment using packed tower aeration except toluene;

(2) central treatment using granular activated carbon for each chemical except vinyl chloride and dichloromethane; or

(3) other means available for achieving compliance with the maximum contaminant levels identified in subsection (a).

(c) Monitoring frequency and compliance with MCLs for VOCs are determined under section 5.5 of this rule.

[As amended at: 18 IR 39.]

327 IAC 8-2-5.5 ----- Drinking water standards: collection of samples for volatile organic compound testing other than total trihalomethanes; community and nontransient noncommunity water systems

(a) Community water systems and nontransient noncommunity water systems shall collect samples for volatile organic compound testing in order to determine compliance with section 5.4 of this rule, beginning with the initial compliance period, as follows:

(1) Ground water systems shall take a minimum of one (1) sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point, unless conditions make another sampling point more representative of each source or treatment plant, or within the distribution system.

(2) Surface water systems (or combined surface/ground) shall take a minimum of one (1) sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point, unless conditions make another sampling point more representative of each source or treatment plant, or within the distribution system.

(3) If the system draws water from more than one (1) source and sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions such as when water representative of all sources is being used.

(4) Each community and nontransient noncommunity water system shall take four (4) consecutive quarterly samples for each contaminant listed in section 5.4 of this rule, except vinyl chloride, during each compliance period, beginning in the initial compliance period.

(5) If the initial monitoring for contaminants listed in section 5.4 of this rule, as allowed by subsection (b), has been completed by December 31, 1992, and the system did not detect any contaminant listed in section 5.4 of this rule, then each ground and surface water system shall take one (1) sample annually beginning with the initial compliance period.

(6) After a minimum of three (3) years of annual sampling, the commissioner may allow ground water systems with no previous detection of any contaminant listed in section 5.4 of this rule to take one (1) sample during each compliance period.

(7) Each community and nontransient noncommunity ground water system which does not detect a contaminant listed in section 5.4 of this rule may apply to the commissioner for a waiver from the requirements of subdivisions (5) and (6) after completing the initial monitoring. As used in this section, "detection" means greater than or equal to five ten-thousandths (0.0005) milligram per liter. A waiver shall be effective for no more than six (6) years (two (2) compliance periods). The commissioner may also issue waivers to small systems for the initial round of monitoring for 1,2,4-trichlorobenzene.

(8) The commissioner may grant a waiver after evaluating the following factors:

(A) Knowledge of previous use (including transport, storage, or disposal) of the contaminant within the watershed or zone of influence of the system. If a determination by the commissioner reveals no previous use of the contaminant within the watershed or zone of influence, a waiver may be granted.

(B) If previous use of the contaminant is unknown or if the contaminant has been used previously, then the following factors shall be used to determine whether a waiver is granted:

(i) Previous analytical results.

(ii) The proximity of the system to a potential point or nonpoint source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities.

(iii) The environmental persistence and transport of the contaminants.

(iv) The number of persons served by the public water system, and the proximity of a smaller system to a larger system.

(v) How well the water source is protected against contamination, such as whether it is a surface or ground water system. Ground water systems must consider factors such as the depth of the well, the type of soil, and wellhead protection. Surface water systems must consider watershed protection.

(9) As a condition of the waiver, a ground water system must take one (1) sample at each sampling point during the time the waiver is effective, for example, one (1) sample during two (2) compliance periods or six (6) years, and update its vulnerability assessment considering the factors listed in subdivision (8). Based on this vulnerability assessment, the commissioner must reconfirm that the system is nonvulnerable. If the commissioner does not make this reconfirmation within three (3) years of the initial determination, then the waiver is invalidated and the system is required to sample annually as specified in subdivision (5).

(10) Each community and nontransient noncommunity surface water system which does not detect a contaminant listed in section 5.4 of this rule may apply to the commissioner for a waiver from the requirements of subdivision (5) after completing the initial monitoring. Composite samples from a maximum of five (5) sampling points are allowed provided that the detection limit of the method used for analysis is less than one-fifth (1/5) of the MCL. Systems meeting this criterion must be determined by the commissioner to be nonvulnerable based on a vulnerability assessment during each compliance period. Each system receiving a waiver shall sample at the frequency specified by the commissioner (if any).

(11) If a contaminant listed in section 5.4 of this rule, except vinyl chloride, is detected at a level exceeding five ten-thousandths (0.0005) milligram per liter in any sample, then the monitoring requirements will be as follows:

(A) The system must monitor quarterly at each sampling point which resulted in a detection.

(B) The commissioner may decrease the quarterly monitoring requirement specified in clause (A) provided it has determined that the system is reliably and consistently below the MCL. In no case shall the commissioner make this determination unless a ground water system takes a minimum of two (2) quarterly samples and a surface water system takes a minimum of four (4) quarterly samples.

(C) If the commissioner determines that the system is reliably and consistently below the MCL, the commissioner may allow the system to monitor annually. Systems which monitor annually must monitor during the quarter or quarters which previously yielded the highest analytical result.

(D) Systems which have three (3) consecutive annual samples with no detection of a contaminant may apply to the commissioner for a waiver as specified in subdivision (7).

(E) Ground systems which have detected one (1) or more two-carbon organic compounds:

(i) trichloroethylene;

(ii) tetrachloroethylene;

(iii) 1,2-dichloroethane;

(iv) 1,1,1-trichloroethane;

(v) cis-1,2-dichloroethylene;

(vi) trans-1,2-dichloroethylene; or

(vii) 1,1-dichloroethylene;

shall monitor quarterly for vinyl chloride. A vinyl chloride sample shall be taken at each sampling point at which one (1) or more of the two-carbon organic compounds was detected. If the results of the first analysis do not detect vinyl chloride, the commissioner may reduce the quarterly monitoring frequency of vinyl chloride monitoring to one (1) sample during each compliance period. Surface water systems are required to monitor for vinyl chloride as specified by the commissioner.

(12) Systems which violate the requirements of section 5.4 of this rule, as determined by subdivision (15), must monitor quarterly. After a minimum of four (4) consecutive quarterly samples which show the system is in compliance as specified in subdivision (15) if the commissioner determines that the system is reliably and consistently below the MCL, the system may monitor at the frequency and times specified in subdivision (11)(C).

(13) The commissioner may require a confirmation sample for positive or negative results. If a confirmation sample is required by the commissioner, the result must be averaged with the first sampling result and the average is used for the compliance determination as specified by subdivision (15). The commissioner has the discretion to delete results of obvious sampling errors from this calculation.

(14) The commissioner may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five (5) sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth (1/5) of the MCL. Compositing of samples must be done in the laboratory and analyzed within fourteen (14) days of sample collection as follows.

(A) If the concentration in the composite sample is greater than or equal to five ten-thousandths (0.0005) milligram per liter for any contaminant listed in section 5.4 of this rule, then a follow-up sample must be analyzed within fourteen (14) days from each sampling point included in the composite, and be analyzed for that contaminant.

(B) If duplicates of the original sample taken from each sampling point used in the composite sample are available, the system may use the duplicates instead of resampling. The duplicates must be analyzed and the results reported to the commissioner within fourteen (14) days after completing analysis of the composite sample, provided the holding time of the composite sample is not exceeded.

(C) Compositing may only be permitted by the commissioner at sampling points within a single system if the population served by the system is greater than three thousand three hundred (3,300) persons. In systems serving less than or equal to three thousand three hundred (3,300) persons, the commissioner may permit compositing among different systems provided the five (5) sample limit is maintained.

(D) Compositing of samples prior to gas chromatography (GC) analysis shall be as follows:

(i) Add five (5) milliliters or equal larger amounts of each sample (up to five (5) samples are allowed) to a twentyfive (25) milliliter glass syringe. Special precautions must be made to maintain zero (0) headspace in the syringe.

(ii) The samples must be cooled at four (4) degrees Celsius during this step to minimize volatilization losses.

(iii) Mix well and draw out a five (5) milliliter aliquot for analysis.

(iv) Follow sample introduction, purging, and desorption steps described in the method.

(v) If less than five (5) samples are used for compositing, a proportionately smaller syringe may be used.

(E) Compositing of samples prior to gas chromatography/mass spectrometry (GS/MS) analysis shall be as follows:

(i) Inject five (5) milliliters or larger amounts of each aqueous solution (up to five (5) samples are allowed) into a twenty-five (25) milliliter purging device using the sample introduction technique described in the method.

(ii) The total volume of the sample in the purging device must be twenty-five (25) milliliters.

(iii) Purge and desorb as described in the method.

(15) Compliance with section 5.4 of this rule shall be determined based on the analytical results obtained at each sampling point using the following criteria:

(A) For systems which are conducting monitoring at a frequency greater than annually, compliance is determined by a running annual average of all samples taken at each sampling point. If the annual average of any sampling point is greater than the MCL, then the system is out of compliance. If the initial sample or a subsequent sample would cause the annual average to be exceeded, then the system is out of compliance immediately.

(B) If monitoring is conducted annually, or less frequently, the system is out of compliance if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the commissioner, the determination of compliance will be based on the average of two (2) samples.

(C) If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the commissioner may allow the system to give public notice to only that area served by that portion of the system which is out of compliance.

(b) The commissioner may allow the use of monitoring data collected after January 1, 1988, for purposes of initial monitoring compliance. If the data are generally consistent with the other requirements of this section, the commissioner may use these data (a single sample rather than four (4) quarterly samples) to satisfy the initial monitoring requirement of subsection (a)(4). Systems which use grandfathered samples and do not detect any contaminant listed in section 5.4 of this rule, except vinyl chloride, shall begin monitoring annually in accordance with subsection (a)(5), beginning with the initial compliance period.

(c) The commissioner may increase required monitoring where necessary to detect variations within the system.

(d) To receive certification to conduct analyses for the contaminants in section 5.4 of this rule, excluding vinyl chloride, each certified laboratory must meet the following requirements:

(1) Successfully analyze performance evaluation (PE) samples provided by EPA, the commissioner, or by a third party with the approval of EPA or the commissioner, at least once a year by each method for which the laboratory desires certification.

(2) Achieve the quantitative acceptance limits under subdivisions (3) and (4) for at least eighty percent (80%) of the regulated organic chemicals in section 5.4 of this rule, excluding vinyl chloride.

(3) Achieve quantitative results on the analyses performed under subdivision (1) that are within plus or minus twenty percent (±20%) of the actual amount of the sub-

stances in the PE sample when the actual amount is greater than or equal to ten-thousandths milligrams per liter (ž 0.010 mg/l).

(4) Achieve quantitative results on the analyses performed under subdivision (1) that are within plus or minus forty percent (±40%) of the actual amount of the substances in the PE sample when the actual amount is less than ten-thousandths milligrams per liter (< 0.010 mg/l).

(5) Achieve a method detection limit of five ten-thousandth milligrams per liter (0.0005 mg/l), according to the procedures in 40 CFR 136, Appendix B*.

(e) To receive certification to conduct analyses for vinyl chloride, the laboratory must meet the following requirements:

(1) Successfully analyze PE samples provided by EPA, the commissioner, or by a third party with the approval of EPA or the commissioner, at least once a year by each method for which the laboratory desires certification.

(2) Achieve quantitative results on the analyses performed under subdivision (1) that are within plus or minus forty percent (±40%) of the actual amount of vinyl chloride in the PE sample.

(3) Achieve a method detection limit of five ten-thousandth milligrams per liter (0.0005 mg/l), according to the procedures in 40 CFR 136, Appendix B*.

(4) Obtain certification for the contaminants listed in section 5.4 of this rule.

(f) Each public water system shall monitor at the time designated by the commissioner within each compliance period.

(g) The commissioner may increase required monitoring where necessary to detect variations within the system.

(h) The commissioner has the authority to determine compliance or initiate enforcement based upon analytical results or other information.

40 CFR 136, Appendix B is incorporated by reference. Copies of this regulation may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46206.

[As amended at: 24 IR 3960.]

327 IAC 8-2-5.6 ----- Drinking water standards: analytical methods for volatile organic compounds

(a) Analysis for the contaminants listed in section 5.5 of this rule shall be conducted using the following U.S. EPA methods or their equivalent as approved by EPA:

(1) Benzene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(2) Carbon tetrachloride, as described in Method 502.2, Rev 2.1*, Method 524.2, Rev 4.1*, or Method 551.1, Rev 1.0*.

(3) Chlorobenzene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(4) 1,2-dichlorobenzene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(5) 1,4-dichlorobenzene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(6) 1,2-dichloroethane, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(7) cis-dichloroethylene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(8) trans-dichloroethylene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(9) Dichloromethane, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(10) 1,2-dichloropropane, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(11) Ethylbenzene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(12) Styrene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(13) Tetrachloroethylene, as described in Method 502.2, Rev 2.1*, Method 524.2, Rev 4.1*, or Method 551.1, Rev 1.0*.

(14) 1,1,1-trichloroethane, as described in Method 502.2, Rev 2.1*, Method 524.2, Rev 4.1*, or Method 551.1, Rev 1.0*.

(15) Trichloroethylene, as described in Method 502.2, Rev 2.1*, Method 524.2, Rev 4.1*, or Method 551.1, Rev 1.0*.

(16) Toluene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(17) 1,2,4-trichlorobenzene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(18) 1,1-dichloroethylene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(19) 1,1,2-trichloroethane, as described in Method 502.2, Rev 2.1*, Method 524.2, Rev 4.1*, or Method 551.1, Rev 1.0*.

(20) Vinyl chloride, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(21) Xylenes (total), as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(b) Analysis under this section shall only be conducted by laboratories that are certified by the commissioner or EPA under 40 CFR 141.28*.

(c) The following procedure shall be followed to composite samples prior to analysis:

(1) Compositing of samples prior to gas chromatography (GC) analysis shall be as follows:

(A) Add five (5) milliliters or equal larger amounts of each sample (up to five (5) samples are allowed) to a twenty-five (25) milliliter glass syringe. Special precautions must be made to maintain zero (0) headspace in the syringe.

(B) The samples must be cooled at four (4) degrees Celsius during this step to minimize volatilization losses.

(C) Mix well and draw out a five (5) milliliter aliquot for analysis.

(D) Follow sample introduction, purging, and desorption steps described in the method.

(E) If less than five (5) samples are used for compositing, a proportionately smaller syringe may be used.

(2) Compositing of samples prior to gas chromatography/mass spectrometry (GC/MS) analysis shall be as follows:

(A) Inject five (5) milliliters or equal larger amounts of each aqueous sample (up to five (5) samples are allowed) into a twenty-five (25) milliliter purging device using the sample introduction technique described in the method.

(B) The total volume of the sample in the purging device must be twenty-five (25) milliliters.

(C) Purge and desorb as described in the method.

*Methods referenced in this section may be obtained as follows:

(1) Method 551 may be found in "Methods for the Determination of Organic Compounds in Drinking Water–Supplement I", July 1990, EPA-600-4-90-020, avail-

able from NTIS, PB91-146027, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(2) Methods 502.2, Rev 2.1, 524.2, Rev 4.1, and 551.1, Rev 1.0 may be found in "Methods for the Determination of Organic Compounds in Drinking Water - Supplement III", EPA/600/R-95-131, August 1995, available from NTIS, PB95-261616, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(3) 40 CFR 141.28 may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

These methods are available for copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

[As amended at: 24 IR 3963.]

327 IAC 8-2-7 ------- Drinking water standards: microbiological contaminants; maximum contaminant levels for all public water systems

(a) The microbiological MCL applies to all public water systems and is based on the presence or absence of total coliforms in a sample, rather than coliform density. For a system:

(1) which collects at least forty (40) samples per month, if no more than five percent (5%) of the samples collected during a month are total coliform-positive, the system is in compliance with the MCL for total coliforms; or

(2) which collects fewer than forty (40) samples per month, if no more than one (1) sample collected during a month is total coliform-positive, the system is in compliance with the MCL for total coliforms.

(b) Any fecal coliform-positive repeat sample or E. coli-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or E. coli-positive routine sample, constitutes a violation of the MCL for total coliforms. For purposes of the public notification requirements in section 15 of this rule, this is a violation that may pose an acute risk to health.

(c) A public water system must determine compliance with the MCL for total coliforms in subsections (a) and (b) for each month in which it is required to monitor for total coliforms.

(d) The following are BAT for achieving compliance with the MCL for total coliforms in subsections (a) and (b):

(1) Protection of wells from coliform contamination by appropriate placement and construction.

(2) Maintenance of a disinfectant residual throughout the distribution system.

(3) Proper maintenance of the distribution system, including appropriate pipe replacement and repair procedures, main flushing programs, proper operation and maintenance of storage tanks and reservoirs, and continual maintenance of positive water pressure in all parts of the distribution system.

(4) Filtration and/or disinfection of surface water, as described in sections 8.5 and 8.6 of this rule, or disinfection of ground water using strong oxidants such as chlorine, chlorine dioxide, or ozone.

(5) For systems using ground water compliance with the requirements of an EPA approved wellhead protection program developed and implemented under Section 1428 of the Safe Drinking Water Act.

[As amended at: 16 IR 2154.]

327 IAC 8-2-8 ------- Drinking water standards: collection of samples for total coliform bacteria testing

(a) Public water systems must collect total coliform samples at sites which are representative of water throughout the distribution system according to a written sample siting plan approved by the commissioner.

(b) The monitoring frequency for total coliforms for community water systems is based on the population served by the system and shall be as follows, unless the commissioner determines that more frequent sampling is appropriate:

TOTAL COLIFORM MONITORING FREQUENCY
FOR COMMUNITY WATER SYSTEMS

Population served		Minimum number of samples per month
25	to 1,000[1]	1
1,001	to 2,500	2
2,501	to 3,300	3
3,301	to 4,100	4
4,101	to 4,900	5
4,901	to 5,800	6
5,801	to 6,700	7
6,701	to 7,600	8
7,601	to 8,500	9
8,501	to 12,900	10
12,901	to 17,200	15
17,201	to 21,500	20
21,501	to 25,000	25
25,001	to 33,000	30
33,001	to 41,000	40
41,001	to 50,000	50
50,001	to 59,000	60
59,001	to 70,000	70
70,001	to 83,000	80
83,001	to 96,000	90
96,001	to 130,000	100
130,001	to 220,000	120
220,001	to 320,000	150
320,001	to 450,000	180
450,001	to 600,000	210
600,001	to 780,000	240
780,001	to 970,000	270
970,001	to 1,230,000	300
1,230,00	to 1,520,000	330

[1]Includes public water systems that have at least fifteen (15) service connections but serve fewer than twenty-five (25) persons.

If a community water system serving twenty-five (25) to one thousand (1,000) persons has no history of total coliform contamination in its current configuration and a sanitary survey conducted in the past five (5) years shows that the system is supplied solely by a protected ground water source and is free of sanitary defects, the commissioner may reduce the moni-

toring frequency specified in this subsection, in writing, except that in no case may the commissioner reduce the monitoring frequency to less than one (1) sample per quarter.

(c) The monitoring frequency for total coliforms for noncommunity water systems is as follows:

(1) A noncommunity water system using only ground water (except ground water under the direct influence of surface water, as defined in section 1(29) of this rule) and serving one thousand (1,000) or fewer persons must monitor each calendar quarter that the system provides water to the public, except that the commissioner may reduce this monitoring frequency, in writing, if a sanitary survey shows that the system is free of sanitary defects. Beginning June 29, 1994, the commissioner shall not reduce the monitoring frequency for a noncommunity water system using only ground water (except ground water under the direct influence of surface water, as defined in section 1(29) of this rule) and serving one thousand (1,000) or fewer persons to less than once per year.

(2) A noncommunity water system using only ground water (except ground water under the direct influence of surface water, as defined in section 1(29) of this rule) and serving more than one thousand (1,000) persons during any month must monitor at the same frequency as a like-sized community water system, as specified in subsection (b), except the commissioner may reduce this monitoring frequency, in writing, for any month the system serves one thousand (1,000) or fewer persons. The commissioner shall not reduce the monitoring frequency to less than once per year. For systems using ground water under the direct influence of surface water, subdivision (4) applies.

(3) A noncommunity water system using surface water, in total or in part, must monitor at the same frequency as a like-sized community water system, as specified in subsection (b), regardless of the number of persons it serves.

(4) A noncommunity water system using ground water under the direct influence of surface water, as defined in section 1(29) of this rule, must monitor at the same frequency as a like-sized community water system specified in subsection (b). The system must begin monitoring at this frequency beginning six (6) months after the commissioner determines that the ground water is under the direct influence of surface water.

(d) The public water system must collect samples at regular time intervals throughout the month, except that a system which uses only ground water (except ground water under the direct influence of surface water, as defined in section 1(22) of this rule) and serves four thousand nine hundred (4,900) persons or fewer, may collect all required samples on a single day if they are taken from different sites.

(e) Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, shall not be used to determine compliance with the MCL for total coliforms in section 7 of this rule. Repeat samples taken under section 8.1 of this rule are not considered special purpose samples and must be used to determine compliance with the MCL for total coliforms required by section 7 of this rule. Any sample not designated as special purpose prior to analysis by the laboratory shall be used to determine compliance with the MCL for total coliforms in section 7 of this rule.

(f) A total coliform-positive sample invalidated under this subsection does not count towards meeting the minimum monitoring requirements of this section. The total coliform-positive sample may be invalidated only if the following conditions are met:

(1) The laboratory establishes that improper sample analysis caused the total coliform-positive result.

(2) The commissioner, on the basis of the results of repeat samples collected as required by section 8.1(a) through 8.1(d) of this rule, determines that the total coliform-positive sample resulted from a domestic or other nondistribution system plumbing problem. The commissioner cannot invalidate a sample on the basis

of repeat sample results unless all repeat samples collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected within five (5) service connections of the original tap are total coliform-negative, for example, the commissioner cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliformnegative or if the public water system has only one (1) service connection.

(3) The commissioner has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition which does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required by section 8.1(a) through 8.1(d) of this rule and use them to determine compliance with the MCL for total coliforms in section 7 of this rule. To invalidate a total coliform-positive sample under this subsection, the decision must be documented, in writing, and approved and signed by the supervisor of the state official who recommended the decision. The commissioner must make this document available to EPA and the public. The written documentation must state the specific cause of the total coliform-positive sample and what action the system has taken, or will take, to correct this problem. The commissioner may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

(4) A laboratory must invalidate a total coliform sample, unless total coliforms are detected, if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined, for example, the multiple-tube fermentation technique, produces a turbid culture in the absence of an acid reaction in the presenceabsence (P-A) coliform test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter, for example, the membrane filter technique. If a laboratory invalidates a sample because of such interference, the system must collect another sample from the same location as the original sample within twenty-four (24) hours of being notified of the interference problem and have it analyzed for the presence of total coliforms. The system must continue to resample within twenty-four (24) hours and have the samples analyzed until it obtains a valid result. The commissioner may waive the twenty-four (24) hour time limit on a case-by-case basis.

[As amended at: 24 IR 3965.]

327 IAC 8-2-8.1 ----- Drinking water standards: repeat monitoring for total coliform bacteria

(a) If a routine sample is total coliform-positive, the public water system must collect a set of repeat samples within twenty-four (24) hours of being notified by the laboratory or the commissioner of the positive result. A system which collects more than one (1) routine sample per month must collect no fewer than three (3) repeat samples for each total coliform-positive sample found. A system which collects one (1) routine sample per month or fewer must collect no fewer than four (4) repeat samples for each total coliformpositive sample found. The commissioner may extend the twenty-four (24) hour limit up to forty-eight (48) hours on a case-bycase basis if the system has a problem beyond its control in collecting the repeat samples within twenty-four (24) hours. The system must have sufficient sample bottles on hand to collect any required repeat samples within twenty-four (24) hours of notification by the laboratory or the commissioner, or must have the ability to acquire sample bottles and collect samples within twenty-four (24) hours of notification by the laboratory or the commissioner or a positive total coliform sample.

(b) The system must collect at least one (1) repeat sample from the sampling tap where the original total coliform-positive sample was taken, at least one (1) repeat sample at a tap within five (5) service connections upstream, and at least one (1) repeat sample at a tap within five (5) service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one (1) away from the

end of the distribution system, the commissioner may waive the requirement to collect at least one (1) repeat sample upstream or downstream of the original sampling site.

(c) The system must collect all repeat samples on the same day, except that the commissioner may allow a system with a single service connection to collect the required set of repeat samples over a four (4) day period or to collect a larger volume of repeat samples in one (1) or more sample containers of any size, as long as the total volume collected is at least four hundred (400) milliliters or three hundred (300) milliliters for systems which collect more than one (1) routine sample per month.

(d) If one (1) or more repeat samples in the set is total coliform-positive, the public water system must collect an additional set of repeat samples in the manner specified in subsections (a) through (c). The additional samples must be collected within twenty-four (24) hours of being notified of the positive result, unless the commissioner extends the limit as provided in subsection (a). The system must repeat this process until either total coliforms are not detected in one (1) complete set of repeat samples or the system determines that the MCL for total coliforms in section 7 of this rule has been exceeded and notifies the commissioner.

(e) If a system collecting fewer than five (5) routine samples per month has one (1) or more total coliform-positive samples, and the commissioner does not invalidate the samples under section 8(f) of this rule, it must collect at least five (5) routine samples during the next month the system provides water to the public, except that the commissioner may waive this requirement if the following conditions are met:

(1) The commissioner may waive the requirement to collect five (5) routine samples the next month the system provides water to the public if the commissioner, or an agent approved by the commissioner, performs a site visit before the end of the next month the system provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the commissioner to determine whether additional monitoring or any corrective action or both is needed. An employee of the system shall not be approved to perform this site visit.

(2) The commissioner may waive the requirement to collect five (5) routine samples the next month the system provides water to the public if the commissioner has determined why the sample was total coliform-positive and establishes that the system has corrected the problem or will correct the problem before the end of the next month the system serves water to the public. In this case, the decision to waive the following month's additional monitoring requirement must be documented in writing, approved, and signed by the supervisor of the state official who recommends such a decision and made available to the EPA and public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the system has taken or will take to correct this problem. The requirement to collect five (5) routine samples the next month the system provides water to the public cannot be waived solely on the grounds that all repeat samples are total coliformnegative. Under this subdivision, a system must still take at least one (1) routine sample before the end of the next month it serves water to the public and use it to determine compliance with the MCL for total coliforms in section 7 of this rule, unless the commissioner has determined that the system has corrected the contamination problem before the system took the set of repeat samples required in subsections (a) through (d) and all repeat samples were total coliform-negative. The commissioner shall not waive the requirement for a system to collect repeat samples in subsections (a) through (d).

(f) After a system collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample from within five (5) adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, then the system may count the subsequent samples as a repeat sample instead of as a routine sample.

(g) Results of all routine and repeat samples not invalidated by the commissioner must be included in determining compliance with the MCL for total coliforms in section 7 of this rule. Any sample not designated as special purpose prior to analysis by the laboratory shall be used to determine compliance with the MCL for total coliforms in section 7 of this rule.

[As amended at: 24 IR 3966.]

327 IAC 8-2-8.2 ----- Drinking water standards: sanitary surveys

(a) Public water systems which do not collect five (5) or more routine samples per month must undergo an initial sanitary survey by June 29, 1994, for community public water systems and June 29, 1999, for noncommunity water systems. Thereafter, systems must undergo another sanitary survey every five (5) years or more frequently, as determined by the commissioner, except that noncommunity water systems using only protected and disinfected ground water, as determined by the commissioner, must undergo subsequent sanitary surveys at least every ten (10) years after the initial sanitary survey. The commissioner must review the results of each sanitary survey to determine whether the existing monitoring frequency is adequate and what measures the system needs to undertake to improve drinking water quality.

(b) In conducting a sanitary survey of a system using ground water after EPA approves a wellhead protection program under Section 1428 of the Safe Drinking Water Act, information on sources of contamination within the delineated wellhead protection area that was collected in the course of developing and implementing the program should be considered instead of collecting new information if the information was collected since the last time the system was subject to a sanitary survey.

(c) Sanitary surveys must be performed by the commissioner or an agent approved by the commissioner. The public water system must ensure that the sanitary survey takes place.

[As amended at: 16 IR 2158.]

327 IAC 8-2-8.3 ----- Drinking water standards: collection of samples for fecal coliforms or Escherichia coli (E. coli) testing

(a) If any routine or repeat sample is total coliform-positive, the public water supply system must analyze that total coliform-positive culture medium to determine if fecal coliforms are present, except that the system may test for E. coli in lieu of fecal coliforms. If fecal coliforms or E. coli are present, the public water supply system must notify the commissioner by the end of the same business day that the system is notified of the test results. If the system is notified of the result after the close of business, the system shall notify the commissioner before the end of the next business day.

(b) The commissioner has the discretion to allow a public water system, on a case-by-case basis, to forego fecal coliform or E. coli testing on a total coliform-positive sample if that system assumes that the total coliform-positive sample is fecal coliform-positive or E. coli-positive. Accordingly, the system must notify the commissioner as specified in subsection (a), and the provisions of section 7(b) of this rule apply.

[As amended at: 16 IR 2158.]

327 IAC 8-2-8.4 ----- Drinking water standards: analytical methods for microbiological contaminants

(a) A public water system shall analyze for microbiological contaminants as follows:

(1) The standard sample volume required for total coliform analysis, regardless of analytical method used, is one hundred (100) milliliters.

(2) Public water systems need only determine the presence or absence of total coliforms, and a determination of total coliform density is not required.

(3) Public water systems must conduct total coliform analyses in accordance with one (1) of the following analytical methods:

(A) Total coliform fermentation technique [1,2,3,] as set forth in Method 9221A* and Method 9221B*.

(B) Total coliform membrane filter technique[4] as set forth in Method 9222A*, Method 9222B*, and Method 9222C*.

(C) Presence-absence (P-A) coliform test[3, 5] as set forth in Method 9221D*.

(D) ONPG-MUG test[6] as set forth in Method 9223*.

(E) Colisure test*[7].

(F) E*Colite® test*.

(G) m-ColiBlue24® test*.

(4) Public water systems must conduct fecal coliform analysis in accordance with the procedure in this subdivision. When the MTF technique or presence-absence (P-A) coliform test is used to test for total coliforms, shake the lactose-positive presumptive tube or P-A bottle vigorously and transfer the growth with a sterile three (3) millimeter loop or sterile applicator stick into brilliant green lactose bile broth and EC medium to determine the presence of total and fecal coliforms, respectively. For EPA-approved analytical methods which use a membrane filter, transfer the total coliform-positive culture by one (1) of the following methods:

(A) Remove the membrane containing the total coliform colonies from the substrate with a sterile forceps and carefully curl and insert the membrane into a tube of EC medium. (The laboratory may first remove a small portion of selected colonies for verification.)

(B) Alternately, the laboratory may swab the entire membrane filter surface with a sterile cotton swab and transfer the inoculum to EC medium (do not leave the cotton swab in the EC medium), or inoculate individual total coliform-positive colonies into EC medium.

Gently shake the inoculated EC tubes to ensure adequate mixing and incubate in a water bath at forty-four and one-half (44.5) degrees Celsius, plus or minus two-tenths (0.2) degrees Celsius, for twenty-four (24) hours, plus or minus two (2) hours. Gas production of any amount in the inner fermentation tube of the EC medium indicates a positive fecal coliform test. The preparation of EC medium is described in Method 9221E, paragraph 1(a)*. Public water systems need only determine the presence or absence of fecal coliforms; a determination of fecal coliform density is not required.

(5) Public water systems must conduct analysis of Escherichia coli in accordance with one (1) of the following analytical methods:

(A) EC medium supplemented with fifty (50) micrograms per milliliter of 4-methylumbelliferyl-beta-D-glucuronide (MUG) (final concentration). EC medium is described in Method 9221E, paragraph 1(a)*. MUG may be added to EC medium before autoclaving. EC medium supplemented with fifty (50) micrograms per milliliter of MUG is commercially available. At least ten (10) milliliters of EC medium supplemented with MUG must be used. The inner inverted fermentation tube may be omitted. The procedure for transferring a total coliform-positive culture to EC medium supplemented with MUG shall be as specified in subdivision (4) for transferring a total coliform-positive culture to EC medium. Observe fluorescence with an ultraviolet light three hundred sixty-six (366) nanometers (preferably with a six (6) watt lamp) in the dark after incubating tube at forty-four and one-half (44.5) degrees Celsius, plus or minus two-tenths (0.2) degrees Celsius, for twenty-four (24) hours, plus or minus two (2) hours.

(B) Nutrient agar supplemented with one hundred (100) micrograms per milliliter of MUG (final concentration). Nutrient agar is described in Method 9221E*. This test is used to determine if a total coliform-positive sample, as determined by the membrane filter technique or any other method in which a membrane filter is used contains E. coli. Transfer the membrane filter containing a total coliform colony(ies) to nutrient agar supplemented with one hundred (100) micrograms per milliliter (final concentration) of

MUG. After incubating the agar plate at thirty-five (35) degrees Celsius for four (4) hours, observe the colony(ies) under ultraviolet light three hundred sixty-six (366) nanometers (preferably with a six (6) watt lamp) in the dark for fluorescence. If fluorescence is visible, E. coli are present.

(C) Minimal medium ONPG-MUG (MMO-MUG) test as described in the article "National Field Evaluation of a Defined Substrate Methods for the Simultaneous Detection of Total Coliforms and Escherichia coli from Drinking Water: Comparison with Presence-Absence Techniques*". If the MMO-MUG test is total coliform-positive after a twenty-four (24) hour incubation, test the medium for fluorescence with a three hundred sixty-six (366) nanometer ultraviolet light (preferably with a six (6) watt lamp) in the dark. If fluorescence is observed, the sample is E. coli-positive. If fluorescence is questionable (cannot be definitively read) after twenty-four (24) hours incubation, incubate the culture for an additional four (4) hours, but not to exceed twenty-eight (28) hours total, and again test the medium for fluorescence. The MMO-MUG test with hepes buffer in lieu of phosphate buffer is the only approved formulation for the detection of E. coli.

(D) The Colisure test*.

(E) The Membrane Filter Method with MI agar*.

(F) E*Colite® test*.

(G) m-ColiBlue24® test*.

(6) As an option to subdivision (5)(C), a system with a total coliform-positive, MUG-negative, MMO-MUG test may further analyze the culture for the presence of E. coli by transferring a one-tenth (0.1) milliliter, twenty-eight (28) hour MMO-MUG culture to EC medium plus MUG with a pipet. The formulation and incubation conditions of EC medium plus MUG and observation of the results are described in subdivision (5)(A).

(b) Response to a violation shall be as follows:

(1) A public water system which has exceeded the MCL for total coliforms in section 7 of this rule must report the violation to the commissioner no later than the end of the next business day after it learns of the violation and notify the public in accordance with section 15 of this rule.

(2) A public water system which has failed to comply with a coliform monitoring requirement, including the sanitary survey requirement, must report the monitoring violation to the commissioner within ten (10) days after the system discovers the violation, and notify the public in accordance with section 15 of this rule.

(c) The time from sample collection to initiation of analysis cannot exceed thirty (30) hours. Systems are encouraged but not required to hold samples below ten (10) degrees Celsius during transit.

(d) The agency strongly recommends that laboratories evaluate the false-positive and negative rates for the method or methods they use for monitoring total coliforms. The agency also encourages laboratories to establish false-positive and negative rates within their own laboratory and sample matrix (drinking water or source water or both) with the intent that if the method they choose has an unacceptable false-positive or negative rate, another method can be used. The agency suggests that laboratories perform these studies on a minimum of five percent (5%) of all total coliform-positive samples, except for those methods where verification or confirmation or both is already required (e.g., the M-Endo and LES Endo Membrane Filter Tests, Standard Total Coliform Fermentation Technique, and Presence-Absence Coliform Test). Methods for establishing false-positive and negative-rates may be based on lactose fermentation, the rapid test for -galactosidase and cytochrome oxidase, multi-test identification systems, or equivalent confirmation tests. False-positive and false-negative information is often available in published studies, from the manufacturer, or both.

[1]Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth, if

the system conducts at least twenty-five (25) parallel tests between this medium and lauryl tryptose broth using the water normally tested, and this comparison demonstrates that the false-positive rate and false-negative rate for total coliform, using lactose broth, is less than ten percent (10%).

[2]If inverted tubes are used to detect gas production, the media should cover these tubes at least one-half (1/2) to two-thirds (2/3) after the sample is added.

[3]No requirement exists to run the completed phase on ten percent (10%) of all total coliform-positive confirmed tubes.

[4]MI agar may also be used*.

[5]Six-times formulation strength may be used if the medium is filter-sterilized rather than autoclaved.

[6]The OPNG-MUG test is also known as the Autoanalysis Colilert System.

[7]The Colisure Test may be read after an incubation time of twenty-four (24) hours.

*The methods referenced in this section may be obtained as follows:

(1) Methods 9221A, 9221B, 9222A, 9222B, 9222C, 9221D, 9223, and 9221E may be found in "Standard Methods for the Examination of Water and Wastewater", 1992, American Public Health Association, et al., 18th edition, or "Standard Methods for the Examination of Water and Wastewater", 1995, American Public Health Association, et al., 19th edition, available from the American Public Health Association, et al., 1015 Fifteenth Street N.W., Washington, D.C. 20005.

(2) A description of the Colisure test may be obtained from IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092.

(3) The minimal medium ONPG-MUG test may be found in "National Field Evaluation of a Defined Substrate Method for the Simultaneous Detection of Total Coliforms and Escherichia coli from Drinking Water: Comparison with Presence-Absence Techniques", (Edberg, et al.), Applied and Environmental Microbiology, Volume 55, pages 1003_1008, April 1989.

(4) Preparation and use of MI agar is set forth in the article, "New Medium for the Simultaneous Detection of Total Coliforms and Escherichia coli in Water" by Brenner, K.P., et al., 1993, Applied Environmental Microbiology, 59:3534-3544, and errata published in Applied and Environmental Microbiology, 59:4378. Also available from the Office of Water Resource Center (RC-4100), 401 M. Street S.W., Washington, D.C. 20460, EPA/600/J-99/225.

(5) A description of the E*Colite® test, "Presence/Absence for Coliforms and E. coli in Water", December 24, 1997, is available from Charm Sciences, Inc., 36 Franklin Street, Malden, Massachusetts 02148-4120.

(6) A description of the m-ColiBlue24® test, August 17, 1999, is available from the Hach Company, 100 Dayton Avenue, Ames, Iowa 50010.

These methods are available for copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

[As amended at: 24 IR 3991.]

327 IAC 8-2-8.5 ----- Drinking water standards: requirement for filtration and disinfection

(a) Effective June 29, 1993, a public water system that uses a surface water source must provide filtration in accordance with this section.

(b) A public water system that uses a ground water source under the direct influence of surface water shall provide filtration in accordance with this section beginning eighteen (18) months after the commissioner determines that it is under the direct influence of surface water from the date specified in section 8.2 of this rule.

(c) A public water system that uses a surface water source or a ground water source under the direct influence of surface water must provide treatment consisting of both disinfection,

as specified in section 8.6 of this rule and filtration treatment. Filtration treatment shall be done by one (1) of the following techniques, and the turbidity level of representative samples of a system's filtered water, regardless of filtration technique used, shall at no time exceed five (5) nephelometric turbidity units (NTU) in any given sample, measured as specified in section 8.7 of this rule:

(1) For systems using conventional filtration or direct filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to one-half (0.5) NTU in at least ninety-five percent (95%) of the total number of measurements taken each month, measured as specified in sections 8.7(4) and 8.8(b) of this rule, except that if the commissioner determines that the system is capable of achieving at least ninety-nine and nine-tenths percent (99.9%) removal and/or inactivation of Giardia lamblia cysts at some turbidity level higher than one-half (0.5) NTU in at least ninety-five percent (95%) of the total number of measurements taken each month, the commissioner may substitute this higher turbidity limit for that system. However, in no case may the commissioner approve a turbidity limit that allows more than one (1) NTU in more than five percent (5%) of the samples taken each month, measured as specified in sections 8.7(4) and 8.8(b) of this rule.

(2) For systems using slow sand filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to one (1) NTU in at least ninety-five percent (95%) of the measurements taken each month, measured as specified in sections 8.7(4) and 8.8(b) of this rule, except where the commissioner determines that there is no significant interference with disinfection at a higher turbidity level.

(3) For systems using diatomaceous earth filtration, the turbidity level of representative samples of a public water system's filtered water must be less than or equal to one (1) NTU in at least ninety-five percent (95%) of the measurements taken each month, measured as specified in sections 8.7(4) and 8.8(b) of this rule.

(4) A public water system may use a filtration technology not listed in this subsection if it demonstrates to the commissioner, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of section 8.6 of this rule, consistently achieves ninety-nine and nine-tenths percent (99.9%) removal and/or inactivation of Giardia lamblia cysts and ninety-nine and ninety-nine hundredths percent (99.99%) removal and/or inactivation of viruses. For a system that makes this demonstration, the requirements of this subsection apply.

(d) During plant operation, each public water system subject to this section shall be operated only by personnel who have been certified by the commissioner under 327 IAC 8-11 through 327 IAC 8-12.

[As amended at: 16 IR 2160.]

327 IAC 8-2-8.6 ----- Drinking water standards: disinfection treatment

Effective June 29, 1993, each public water system that provides filtration treatment must provide disinfection treatment as follows:

(1) The disinfection treatment must be sufficient to ensure that the total treatment processes of that system achieve at least ninety-nine and nine-tenths percent (99.9%) (3-log) inactivation and/or removal of Giardia lamblia cysts and at least ninety-nine and ninety-nine hundredths percent (99.99%) (4-log) inactivation and/or removal of viruses, as determined by the commissioner.

(2) The residual disinfectant concentration in the water entering the distribution system, measured as specified in sections 8.7(5) and 8.8(d) of this rule, cannot be less than two-tenths (0.2) milligram per liter for more than four (4) hours.

(3) The residual disinfectant concentration in the distribution system, measured as total chlorine, combined chlorine, or chlorine dioxide, as specified in sections 8.7(5) and 8.8(d) of this rule, cannot be undetectable in more than five percent

(5%) of the samples each month, for any two (2) consecutive months that the system serves water to the public. Water in the distribution system with a heterotrophic bacteria concentration less than or equal to five hundred (500) per milliliter, measured as heterotrophic plate count (HPC) as specified in section 8.7(3) of this rule, is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement. Thus, the value V in the following formula cannot exceed five percent (5%) in one (1) month, for any two (2) consecutive months:

$$V = \frac{c+d+e}{a+b} \times 100$$

Where: a = number of instances where the residual disinfectant concentration is measured

b = number of instances where the residual disinfectant concentration is not measured but HPC is measured

c = number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured.

d = number of instances where no residual disinfectant concentration is detected and where the HPC is greater than five hundred (500) per milliliter

e = number of instances where the residual disinfectant concentration is not measured and HPC is greater than five hundred (500) per milliliter

(4) If the commissioner determines, based on site-specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified in section 8.7 of this rule and that the system is providing adequate disinfection in the distribution system, the requirements of subdivision (3) do not apply.

[As amended at: 16 IR 2161.]

327 IAC 8-2-8.7 ----- Drinking water standards: analytical and monitoring requirements; fecal coliform, total coliform, turbidity, disinfection

Only the analytical methods and procedures specified in this section, or otherwise approved by EPA, may be used to demonstrate compliance with the requirements of sections 8.5 and 8.6 of this rule. Measurements for pH, turbidity, temperature, and residual disinfectant concentrations must be conducted using methods specified in this rule. Measurements for total coliforms, fecal coliforms, and HPC must be conducted by a laboratory certified by the commissioner or EPA under 40 CFR 141.28*. Until laboratory certification criteria are developed for the analysis of fecal coliforms and HPC, any laboratory certified for total coliforms analysis by the commissioner or EPA is deemed certified for fecal coliforms and HPC analysis. The following procedures shall be conducted in accordance with the publications listed as follows:

(1) Total coliform[1] as set forth in the following:

(A) Total coliform fermentation technique[2, 3, 4], Method 9221A*, B*, and C*.

(B) Total coliform membrane filter technique[7], Method 9222A*, B*, and C*.

(C) ONPG-MUG test membrane[5], Method 9223*.

(2) Fecal coliforms[1] as set forth in:

(A) fecal coliform procedure [7], Method 9221E*; or

(B) fecal coliform filter procedure, Method 9222D.

(3) Heterotrophic bacteria[1], Method 9215B*, pour plate method.

(4) Turbidity as set forth in:

(A) nephelometric method, Method 2130B* or Method 180.1*; or

(B) Great Lakes Instruments method, Method 2*.

(5) Residual disinfectant concentrations for free chlorine and combined chlorine (chloramines) as set forth in the following methods:

(A) Method 4500-Cl D*, amperometric titration method.

(B) Method 4500-Cl F*, DPD ferrous titrimetric method.

(C) Method 4500-Cl G*, DPD colorimetric method.

(D) Method 4500-Cl H*, syringaldazine (FACTS).

(E) DPD colorimetric test kits, if approved by the commissioner.

(F) Free chlorine residuals may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument, provided the chemistry, accuracy, and precision remain the same. Instruments used for continuous monitoring must be calibrated with a grab sample measurement at least every five (5) days, or with a protocol approved by the commissioner.

(6) Residual disinfectant concentrations for ozone by the indigo method, Method 4500-O_3 B*.

(7) Residual disinfectant concentrations for chlorine dioxide must be measured by Method 4500-ClO_2 C, amperometric method, Method 4500-ClO_2 E*, amperometric method, or Method 4500-ClO_2 D*, DPD method.

(8) Residual disinfectant concentrations for total chlorine by the following methods:

(A) Method 4500-Cl D*, amperometric titration.

(B) Method 4500-Cl E*, amperometric titration (low level measurement).

(C) Method 4500-Cl F*, DPD ferrous titrimetric.

(D) Method 4500-Cl I, iodometric electrode.

(E) Method 4500-Cl G*, DPD colorimetric.

(F) Total chlorine residuals may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument, provided the chemistry, accuracy, and precision remain the same. Instruments used for continuous monitoring must be calibrated with a grab sample measurement at least every five (5) days, or with a protocol approved by the commissioner.

[1]The time from sample collection to initiation of analysis may not exceed eight (8) hours. Systems must hold samples below ten (10) degrees Celsius during transit.

[2]Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth if the system conducts at least twenty-five (25) parallel tests between this medium and lauryl tryptose broth using the water normally tested, and this comparison demonstrates that the false-positive rate and false-negative rate for total coliforms using lactose broth, is less than ten percent (10%).

[3]Media should cover inverted tubes at least one-half (1/2) to two-thirds (2/3) after the sample is added.

[4]No requirement exists to run the completed phase on ten percent (10%) of all total coliform-positive confirmed tubes.

[5]The ONPG-MUG test is also known as the Autoanalysis Colilert System.

[6]MI Agar may also be used*.

[7]A-1 broth may be held up to three (3) months in a tightly closed screwcap tube at four (4) degrees Celsius.

*The following methods are incorporated by reference:

(1) Methods referenced in this section, except Method 180.1 and the Great Lakes Instruments Method 2, may be found in "18th Edition of Standard Methods for the

Examination of Water and Wastewater" and "19th Edition of Standard Methods for the Examination of Water and Wastewater", 1992 and 1995, available from the American Public Health Association, 1015 Fifteenth Street, Washington, D.C. 20005. Either edition may be used.

(2) Method 180.1 may be found in "Methods for the Determination of Inorganic Substances in Environmental Samples", EPA-600/R-93-100, August 1993, available from NTIS, PB94-121811, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.

(3) The Great Lakes Instrument (GLI) Method 2 may be found in "Turbidity", November 2, 1992, Great Lakes Instruments, Inc., 8855 North 55th Street, Milwaukee, Wisconsin 53223.

(4) 40 CFR 141.28 may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

These methods are available for copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

[As amended at: 24 IR 3970.]

327 IAC 8-2-8.8 ----- Drinking water standards: monitoring requirements; systems that provide filtration treatment

(a) A public water system that uses a surface water source or a ground water source under the influence of surface water and provides filtration treatment must monitor in accordance with this section beginning June 29, 1993, or when filtration is installed, whichever is later.

(b) Turbidity measurements as required by section 8.5 of this rule must be performed on representative samples of the system's filtered water every four (4) hours (or more frequently) that the system serves water to the public. A public water system may substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis and obtains approval from the commissioner. For any systems using slow sand filtration, filtration treatment other than conventional treatment, direct filtration, or diatomaceous earth filtration, the commissioner may reduce the sampling frequency to once per day if he or she determines that less frequent monitoring is sufficient to indicate effective filtration performance. For systems serving five hundred (500) or fewer persons, the commissioner may reduce the turbidity sampling frequency to once per day, regardless of the type of filtration treatment used, if the commissioner determines that less frequent monitoring is sufficient to indicate effective filtration performance.

(c) The residual disinfectant concentration of the water entering the distribution system must be monitored continuously, and the lowest value must be recorded each day, except that if there is a failure in the continuous monitoring equipment, grab sampling every four (4) hours may be conducted in lieu of continuous monitoring, but for no more than two (2) working days following the failure of the equipment, and systems serving three thousand three hundred (3,300) or fewer persons may take grab samples in lieu of providing continuous monitoring on an ongoing basis at the frequencies each day prescribed as follows:

System size by population	Samples per day*
<500	1
501–1,000	2
1,001–2,500	3
2,501–3,300	4

*The day's samples cannot be taken at the same time. The sampling intervals are subject to review and approval by the commissioner.

If at any time the residual disinfectant concentration falls below two-tenths (0.2) milligram per liter in a system using grab sampling in lieu of continuous monitoring, the system must take a grab sample every four (4) hours until the residual disinfectant concentration is equal

to or greater than two-tenths (0.2) milligram per liter.

(d) The residual disinfectant concentration must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in section 8 of this rule, except that the commissioner may allow a public water system which uses both a surface water source or a ground water source under direct influence of surface water, and a ground water source to take disinfectant residual samples at points other than the total coliform sampling points if the commissioner determines that such points are more representative of treated (disinfected) water quality within the distribution system. Heterotrophic bacteria, measured as heterotrophic plate count (HPC), as specified in section 8.7(3) of this rule, may be measured in lieu of residual disinfectant concentration.

(e) If the commissioner determines, based on site-specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified in section 8.7(3) of this rule, and that the system is providing adequate disinfection in the distribution system, the requirements of subsection (d) do not apply to that system.

[As amended at: 16 IR 2162.]

327 IAC 8-2-9 ------- Drinking water standards: radium-226, radium-228, and gross alpha particle radioactivity; maximum contaminant levels

The following are the maximum contaminant levels for radium-226, radium-228, and gross alpha particle radioactivity:

(1) Combined radium-226 and radium-228: five (5) picocuri per liter.

(2) Gross alpha particle activity (including radium-226 but excluding radon and uranium): fifteen (15) picocuri per liter.

(3) The sampling frequency for the contaminants listed in this section shall be pursuant to section 10.2 of this rule.

[As amended at: 14 IR 1027.]

327 IAC 8-2-10 ------ Drinking water standards: beta and photon radioactivity from manmade radionuclides; maximum contaminant levels

(a) The average annual concentration of beta particle and photon radioactivity from manmade radionuclides in drinking water shall not produce an annual dose equivalent to the total body or any internal organ greater than four (4) millirem per year.

(b) Except for the radionuclides listed in the following table, the concentration of manmade radionuclides causing four (4) millirem total body or organ dose equivalent shall be calculated on the basis of a two (2) liter per day drinking water intake using the one hundred sixty-eight (168) hour data listed in "Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure," NBS Handbook 69 as amended August 1963, U.S. Department of Commerce. If two (2) or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed four (4) millirem per year.

Average annual concentrations assumed to produce a total body organ dose of four (4) millirem per year

Radionuclide	Critical Organ	pCi per liter
Tritium	Total body	20,000
Strontium-90	Bone marrow	8

(c) The sampling frequency for the contaminants listed in subsections (a) through (b) shall be pursuant to section 10.2 of this rule.

[As amended at: 14 IR 1027.]

327 IAC 8-2-10.1 --- Drinking water standards: analytical methods for radioactivity

(a) The following methods shall be used to determine compliance with sections 9 through 10 of this rule, except in cases where alternative methods have been approved in accordance with section 32 of this rule:

(1) One (1) of the following methods shall be used to test for gross alpha and beta:
- (A) Method 900.0*.
- (B) Page 1 of "Interim Radiochemical Methodology for Drinking Water*".
- (C) Method 00-01*.
- (D) Page 1 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".
- (E) Method 302*.
- (F) Method 7110 B*.
- (G) Method R-1120-76*.

(2) One (1) of the following methods shall be used to test for gross alpha:
- (A) Method 00-02*.
- (B) Method 7110 C*.

(3) One (1) of the following methods shall be used to test for radium 226:
- (A) Method 903.1*.
- (B) Method 903.0*.
- (C) Page 16 of "Interim Radiochemical Methodology for Drinking Water*".
- (D) Page 13 of "Interim Radiochemical Methodology for Drinking Water*".
- (E) Method Ra-04*.
- (F) Method Ra-03*.
- (G) Page 19 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".
- (H) Method 7500-Ra C*.
- (I) Method 304*.
- (J) Method 305*.
- (K) Method 7500-Ra B*.
- (L) Method D 3454-91*.
- (M) Method D 2460-90*.
- (N) Method R-1141-76*.
- (O) Method R-1142-76*.
- (P) Method Ra-05*.
- (Q) New York Method.

(4) One (1) of the following methods shall be used to test for radium 228:
- (A) Method 904.0*.
- (B) Page 24 of "Interim Radiochemical Methodology for Drinking Water*".
- (C) Method Ra-05*.
- (D) Page 19 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".
- (E) Method 304*.
- (F) Method 7500-Ra D*.
- (G) Method R-1142-76*.
- (H) New York Method.

(5) One (1) of the following methods shall be used to test for uranium:
(A) Method 908.0*.
(B) Method 908.1*.
(C) Method 00-07*.
(D) Page 33 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".
(E) 7500-U B*.
(F) 7500-U C*.
(G) D2907-91*.
(H) D 3972-90*.
(I) D 5174-91*.
(J) R-1180-76*.
(K) R-1181-76*.
(L) R-1182-76*.
(M) U-04*.
(N) U-02*.
(O) New Jersey Method.

(6) One (1) of the following methods shall be used to test for radioactive cesium:
(A) Method 901.0*.
(B) Method 901.1*.
(C) Page 92 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".
(D) Method 7500-Cs B*.
(E) Method 7120*.
(F) Method D 2459-72*.
(G) Method D 3649-91*.
(H) Method R-1111-76*.
(I) Method R-1110-76*.
(J) Method 4.5.2.3*.

(7) One (1) of the following methods shall be used to test for radioactive iodine:
(A) Method 902.0*.
(B) Method 901.1*.
(C) Page 6 of "Interim Radiochemical Methodology for Drinking Water*".
(D) Page 9 of "Interim Radiochemical Methodology for Drinking Water*".
(E) Page 92 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".
(F) Method 7500-I B*.
(G) Method 7500-I C*.
(H) Method 7500-I D*.
(I) Method 7120*.
(J) Method D 4785-88*.
(K) Method 4.5.2.3*.

(8) One (1) of the following methods shall be used to test for radioactive strontium 89 and 90:
(A) Method 905.0*.
(B) Page 29 of "Interim Radiochemical Methodology for Drinking Water*".

(C) Method Sr-04*.

(D) Page 65 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".

(E) Method 303*.

(F) Method 7500-Sr B*.

(G) Method R-1160-76*.

(H) Method Sr-01*.

(I) Method Sr-02*.

(9) One (1) of the following methods shall be used to test for tritium:

(A) Method 906.0*.

(B) Page 34 of "Interim Radiochemical Methodology for Drinking Water*".

(C) Method H-02*.

(D) Page 87 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".

(E) Method 306*.

(F) Method 7500-3H B*.

(G) Method D 4107-91*.

(H) Method R-1171-76*.

(10) One (1) of the following methods shall be used to test for gamma emitters:

(A) Method 901.1*.

(B) Method 902.0*.

(C) Method 901.0*.

(D) Page 92 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".

(E) Method 7120*.

(F) Method 7500-Cs B*.

(G) Method 7500-I B*.

(H) Method D 3649-91*.

(I) Method D 4785-88*.

(J) Method R-1110-76*

(K) Method 4.5.2.3*.

(b) When the identification and measurement of radionuclides other than those listed in subsection (a) is required, the following references are to be used, except in cases where alternative methods have been approved in accordance with section 32 of this rule:

(1) Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions, H.L. Krieger and S. Gold, EPA-R4-73-014, U.S. EPA, Cincinnati, Ohio, May 1973.

(2) HASL Procedure Manual, edited by John H. Harley. HASL 300, ERDA Health and Safety Laboratory, New York, New York 1973.

(c) For the purpose of monitoring radioactivity concentrations in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit shall be that concentration which can be counted with a precision of plus or minus one hundred percent (100%) at the ninety-five percent (95%) confidence level (one and ninety-six hundredths (1.96) & where & is the standard deviation of the net counting rate of the sample). Compliance requirements are as follows:

(1) To determine compliance with section 9(1) of this rule, the detection limit shall not exceed one (1) picocuri per liter.

(2) To determine compliance with section 9(2) of this rule, the detection limit shall not exceed three (3) picocuri per liter.

(3) To determine compliance with section 10 of this rule, the detection limits shall not exceed the concentrations listed in the following table:

Detection limits for manmade beta particle and photon emitters:

Radionuclide	Detection limit
Tritium	1,000 pCi/l
Strontium-89	10 pCi/l
Strontium-90	2 pCi/l
Iodine-131	1 pCi/l
Cesium-134	10 pCi/l
Gross beta	4 pCi/l
Other radionuclides	1/10 of the applicable limit

(d) To determine compliance with the MCL listed in sections 9 through 10 of this rule, averages of data shall be used and shall be rounded to the same number of significant figures as the MCL for the contaminant in question.

*The methods referenced in this section may be obtained as follows:

(1) Methods 900.0, 903.1, 903.0, 904.0, 908.0, 908.1, 901.0, 901.1, 902.0, 905.0, and 906.0 may be found in "Prescribed Procedures for Measurement of Radioactivity in Drinking Water", EPA 600/4-80-032, August 1980, PB 80-224744. Available from U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 800-553-6847.

(2) "Interim Radiochemical Methodology for Drinking Water", EPA 600/4-75-008 (revised), March 1976, PB 253258. Available from U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 800-553-6847.

(3) Methods 00-01, 00-02, Ra-04, Ra-03, Ra-05, 00-07, Sr-04, and H-02 may be found in "Radiochemistry Procedures Manual", EPA 520/5-84-006, December 1987, PB 84-215581. Available from U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 800-553-6847.

(4) "Radiochemical Analytical Procedures for Analysis of Environmental Samples", March 1979, EMSL LV 053917. Available from U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 800-553-6847.

(5) Methods 7110 B, 7110 C, 7500-Ra C, 7500-Ra B, 7500-Ra D, 7500-U B, 7500-Cs B, 7500-I B, 7500-I C, 7500-I D, 7500-Sr B, and 7500-3H B may be found in "Standard Methods for the Analysis of Water and Wastewater", 17th, 18th, and 19th Editions, 1989, 1992, and 1995. Available from American Public Health Association, 1015 Fifteenth Street N.W., Washington D.C. 20005.

(6) Methods 302, 304, 305, 303, and 306 may be found in "Standard Methods for the Analysis of Water and Wastewater", 13th Edition, 1971. Available from American Public Health Association, 1015 Fifteenth Street N.W., Washington D.C. 20005.

(7) Method 7500-U C may be found in "Standard Methods for the Analysis of Water and Wastewater", 13th and 17th Editions, 1971, 1989. Available from American Public Health Association, 1015 Fifteenth Street N.W., Washington D.C. 20005.

(8) Method 7120 may be found in "Standard Methods for the Analysis of Water and Wastewater", 19th Edition, 1995. Available from American Public Health Association, 1015 Fifteenth Street N.W., Washington D.C. 20005.

(9) Methods D 3454-91, D 2460-90, D2907-91, D 3972-90, D 5174-91, D 2459-72, D 3649-91, D4785-88, and D 4107-91 may be found in Annual Book of ASTM Standards, Vol 11.02, 1994. Available from American Society of Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428.

(10) Methods R-1120-76, R-1141-76, R-1140-76, R-1142-76, R-1180-76, R-1181-76, R-1182-76, R-1111-76, R-1110-76, R-1160-76, and R-1171-76 may be found in "Methods for Determination of Radioactive Substances in Water and Fluvial Sediments", Chapter A5 in Book 5 of Techniques of Water-Resources Investigations of the United States Geological Survey, 1977. Available from U.S. Geologic Survey (USGS) Information Services, Box 25286, Federal Center, Denver, Colorado 80225-0425.

(11) Methods U-04, U-2, Ra-05, 4.5.2.3, Sr-01, and Sr-02 may be found in "EML Procedures Manual", 27th Edition, Volume 1, 1990. Available from Environmental Measurements Laboratory, U.S. Department of Energy (DOE), 376 Hudson Street, New York, New York 10014-3621.

(12) New York Methods may be found in "Determination of Ra-226 and Ra-228 (Ra-02)", January 1980, Revised June 1982. Available from Radiological Sciences Institute Center for Laboratories and Research, New York State Department of Health, Empire State Plaza, Albany, New York 12201.

(13) New Jersey Method may be found in "Determination of Radium 228 in Drinking Water", August 1980. Available from State of New Jersey, Department of Environmental Protection, Division of Environmental Quality, Bureau of Radiation and Inorganic Analytical Services, 9 Ewing Street, Trenton, New Jersey 08625.

[As amended at:24 IR 3971.]

327 IAC 8-2-10.2 --- Drinking water standards: monitoring frequency for radioactivity; community water systems

(a) Monitoring requirements for gross alpha particle activity, radium-226, and radium-228 in community water systems are as follows:

(1) Compliance with section 9 of this rule shall be based on the analysis of an annual composite of four (4) consecutive quarterly samples or the average of the analyses of four (4) samples obtained at quarterly intervals as follows:

(A) A gross alpha particle activity measurement may be substituted for the required radium-226 and radium-228 analysis, provided that the measured gross alpha particle activity does not exceed five (5) picocuri per liter at a confidence level of ninety-five percent (95%) (one and sixty-five hundredths (1.65) s where s is the standard deviation of the net counting rate of this sample). In localities where radium-228 may be present in drinking water, it is recommended that the commissioner require radium-226 and/or radium-228 analyses when the gross alpha particle activity exceeds two (2) picocuri per liter.

(B) When the gross alpha particle activity exceeds five (5) picocuri per liter, the same or an equivalent sample shall be analyzed for radium-226. If the concentration of radium-226 exceeds three (3) picocuri per liter, the same or an equivalent sample shall be analyzed for radium-228.

(2) Suppliers of water shall monitor at least once every four (4) years following the procedure required by subdivision (1). At the discretion of the commissioner, when an annual record taken in conformance with subdivision (1) has established that the average annual concentration is less than one-half (1/2) the MCL established by section 9 of this rule, analysis of a single sample may be substituted for the quarterly sampling procedure required by subdivision (1) as follows:

(A) More frequent monitoring shall be conducted when ordered by the commissioner in the vicinity of mining or other operations which may contribute alpha particle radioactivity to either surface or ground water sources of drinking water.

(B) A supplier of water shall monitor in conformance with subdivision (1) within one (1) year of the introduction of a new water source for a community water system. More frequent monitoring shall be conducted when ordered by the commissioner in the event of possible contamination, or when changes in the

distribution system or treatment processing occur which may increase the concentration of radioactivity in finished water.

(C) A community water system using two (2) or more sources having different concentrations of radioactivity shall monitor source water, in addition to water from a free-flowing tap, when ordered by the commissioner.

(D) Monitoring for compliance with section 9 of this rule after the initial period need not include radium-228 except when required by the commissioner, provided that the average annual concentration of radium-228 has been assayed at least once using the quarterly sampling procedure required by subdivision (1).

(E) Suppliers of water shall conduct monitoring of any community water system in which the radium-226 concentration exceeds three (3) picocuri per liter, when ordered by the commissioner.

(3) If the average annual MCL for gross alpha particle activity or total radium as set forth in section 9 of this rule is exceeded, the supplier for a community water system shall report to the commissioner pursuant to section 13 of this rule and notify the public pursuant to section 15 of this rule. Monitoring at quarterly intervals shall be continued until the annual average concentration no longer exceeds the MCL or until a monitoring schedule as a condition to a variance or enforcement action shall become effective.

(b) Monitoring requirements for manmade radioactivity in community water systems are as follows:

(1) Systems using surface water sources and serving more than one hundred thousand (100,000) persons and such other community water systems as are designated by the commissioner shall be monitored for compliance with section 10 of this rule by analysis of a composite of four (4) consecutive quarterly samples or analysis of four (4) quarterly samples. Compliance with section 10 of this rule may be assumed without further analysis if the average annual concentration of gross beta particle activity is less than fifty (50) picocuri per liter and if the average annual concentrations of tritium and strontium-90 are less than those listed in the table in section 10 of this rule. Provided, that if both radionuclides are present, the sum of their annual dose equivalents to bone marrow shall not exceed four (4) millirem per year as follows:

(A) If the gross beta particle activity exceeds fifty (50) picocuri per liter an analysis of the sample must be performed to identify the major radioactive constituents present and the appropriate organ and total body doses shall be calculated to determine compliance with section 10 of this rule.

(B) Suppliers of water shall conduct additional monitoring, as ordered by the commissioner, to determine the concentration of manmade radioactivity in principal watersheds designated by the commissioner.

(C) At the discretion of the commissioner, suppliers of water utilizing only ground water may be required to monitor for manmade radioactivity.

(2) Suppliers of water shall monitor at least every four (4) years following the procedure given in subdivision (1).

(3) The supplier for any community water system designated by the commissioner as utilizing waters contaminated by effluents from nuclear facilities shall initiate quarterly monitoring for gross beta particle and iodine-131 radioactivity and annual monitoring for strontium-90 and tritium as follows:

(A) Quarterly monitoring for gross beta particle activity shall be based on the analysis of monthly samples or the analysis of a composite of three (3) monthly samples. The former is recommended. If the gross beta particle activity in a sample exceeds fifteen (15) picocuri per liter, the same or an equivalent sample shall be analyzed for strontium-89 and cesium-134. If the gross beta particle activity exceeds fifty (50) picocuri per liter, an analysis of the sample must be

performed to identify the major radioactive constituents present and the appropriate organ and total body doses shall be calculated to determine compliance with section 10 of this rule.

(B) For iodine-131, a composite of five (5) consecutive daily samples shall be analyzed once each quarter. At the direction of the commissioner, more frequent monitoring shall be conducted when iodine-131 is identified in the finished water.

(C) Annual monitoring for strontium-90 and tritium shall be conducted by analysis of a composite of four (4) consecutive quarterly samples or analysis of four (4) quarterly samples. The latter procedure is recommended.

(D) The commissioner may allow the substitution of environmental surveillance data taken in conjunction with a nuclear facility for direct monitoring of manmade radioactivity by the supplier of water where the commissioner determines such data are applicable to a particular community water system.

(4) If the average annual MCL for manmade radioactivity set forth in section 10 of this rule is exceeded, the operator of a community water system shall report to the commissioner pursuant to section 13 of this rule and give notice to the public pursuant to section 15 of this rule. Monitoring at monthly intervals shall be continued until the concentration no longer exceeds the MCL or until a monitoring schedule as a condition to a variance or enforcement action shall become effective.

[As added at: 14 IR 1029.]

327 IAC 8-2-13 ------ Drinking water standards: reporting requirements; test results and failure to comply

(a) Except where a shorter period is specified in this rule, the supplier of water or the certified laboratory, provided the supplier of water has granted permission in writing to the laboratory using forms provided by the commissioner, and that permission is on file with the commissioner, shall report to the commissioner the results of any test measurement or analysis required by this rule within:

(1) the first ten (10) days following the month in which the result is received; or

(2) the first ten (10) days following the end of the required monitoring period as stipulated by the commissioner, whichever is shorter.

(b) The supplier of water or the certified laboratory, provided the supplier of water has granted permission in writing to the laboratory using forms provided by the commissioner, and that permission is on file with the commissioner, shall report to the commissioner within forty-eight (48) hours of completion of laboratory analysis the failure to comply with any MCL and any other requirement set forth in this rule by telephone or the methods specified in subsection (e). If notification is made by telephone, the results must follow using one (1) of the methods specified in subsection (e) within forty-eight (48) hours of the telephone notification.

(c) The supplier of water or the certified laboratory, provided the supplier of water has granted permission in writing to the laboratory using forms provided by the commissioner, and that permission is on file with the commissioner, shall report to the commissioner within (48) hours of completion of laboratory analysis any positive total coliform results by telephone or the methods specified in subsection (e). If notification is made by telephone, the results must follow using one (1) of the methods specified in subsection (e) within forty-eight (48) hours of the telephone notification.

(d) The supplier of water, upon initiation of each public notification required by section 15 of this rule, shall submit to the commissioner a representative copy of each type of notice distributed, published, posted, or made available to the persons served by the system or to the media.

(e) The submittal of the information required under this section shall be submitted in one (1) of the following manners:

(1) Mail.

(2) Facsimile.

(3) Electronic mail.

(4) Hand delivery.

(5) Other means determined by the commissioner to provide the degree of confidentiality, reliability, convenience, and security appropriate to the information to be submitted.

[As amended at: 24 IR 3974.]

327 IAC 8-2-14 ------ Drinking water standards: reporting and record keeping requirements; systems that provide filtration

(a) Effective June 29, 1993, a public water system that uses a surface water source or a ground water source under the direct influence of surface water and provides filtration treatment must report monthly to the commissioner the information specified in this section. Systems shall submit information to the commissioner using the methods specified in section 13(e) of this rule.

(b) Turbidity measurements as required by section 8.8(b) of this rule must be reported within ten (10) days after the end of each month the system serves water to the public. Information that must be reported includes the following:

(1) The total number of filtered water turbidity measurements taken during the month.

(2) The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in section 8.5(c) of this rule for the filtration technology being used.

(3) The date and value of any turbidity measurements taken during the month which exceed five (5) nephelometric turbidity units (NTU).

(c) Disinfection information specified in section 8.8 of this rule must be reported to the commissioner within ten (10) days after the end of each month the system serves water to the public. Information that must be reported includes the following:

(1) For each day, the lowest measurement of residual disinfectant concentration in milligrams per liter in water entering the distribution system.

(2) The date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below two-tenths (0.2) milligram per liter and when the commissioner was notified of the occurrence.

(3) The following information on the samples taken in the distribution system in conjunction with total coliform monitoring under section 8.6 of this rule:

(A) Number of instances where the residual disinfectant concentration is measured.

(B) Number of instances where the residual disinfectant concentration is not measured but heterotrophic bacteria plate count (HPC) is measured.

(C) Number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured.

(D) Number of instances where no residual disinfectant concentration is detected and where HPC is greater than five hundred (500) per milliliter.

(E) Number of instances where the residual disinfectant concentration is not measured and HPC is greater than five hundred (500) per milliliter.

(F) For the current and previous month the system serves water to the public, the value of V in the following formula:

$$V = \frac{c + d + e}{a + b} \times 100$$

Where: a = the value in clause (A)

b = the value in clause (B)

c = the value in clause (C)

d = the value in clause (D)

e = the value in clause (E)

(G) The commissioner may determine, based on site-specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory within the requisite time and temperature conditions specified by section 8.7(3) of this rule and that the system is providing adequate disinfection in the distribution system, the requirements of clauses (A) through (F) do not apply.

(4) A system need not report the data listed in subdivision (1) if all data listed in subdivisions (1) through (3) remain on file at the system and the commissioner determines that the system has submitted all the information required by subdivisions (1) through (3) for at least twelve (12) months.

(d) Each system, upon discovering that a waterborne disease outbreak potentially attributable to that water system has occurred, must report that occurrence to the commissioner as soon as possible, but no later than by the end of the next business day. If at any time the turbidity exceeds five (5) NTU, the system must inform the commissioner as soon as possible, but no later than the end of the next business day. If at any time the residual falls below two-tenths (0.2) milligram per liter in the water entering the distribution system, the system must notify the commissioner as soon as possible, but no later than the end of the next business day. The system also must notify the commissioner by the end of the next business day whether or not the residual was restored to at least two-tenths (0.2) milligram per liter within four (4) hours.

[As amended at: 24 IR 3974.]

327 IAC 8-2-15 ------ Drinking water standards: failure to comply; maximum contaminant level, treatment technique, or variance schedule

(a) The owner or operator of a public water system which fails to comply with an applicable MCL or treatment technique established by this rule shall initially notify persons served by the system as follows, except as provided by subsection (d):

(1) By publication in a daily newspaper of general circulation in the area served by the system as soon as possible, but in no case later than fourteen (14) days after the violation or failure. If the area served by a public water system is not served by a daily newspaper of general circulation, notice shall instead be given by publication in a weekly newspaper of general circulation serving the area.

(2) By mail delivery (by direct mail or with the water bill) or by hand delivery, not later than forty-five (45) days after the violation or failure. The commissioner may waive mail or hand delivery if it is determined that the owner or operator of the public water system in violation has corrected the violation or failure within the forty-five (45) day period. The commissioner must make the waiver in writing within the forty-five (45) day period.

(3) For violations of MCLs of contaminants that may pose an acute risk to human health, by furnishing a copy of the notice to the radio and television stations serving the area served by the public water system as soon as possible, but in no case later than seventy-two (72) hours after the violation. The following are acute violations:

(A) Any violations specified by the commissioner as posing an acute risk to human health.

(B) Violations of the MCL for nitrate and/or nitrite as defined in section 4(a) of this rule and determined according to section 4.1(e) of this rule.

(C) Violation of the MCL for total coliforms, when fecal coliforms or E. coli are present in the water distribution system as specified in section 7(a) and 7(b) of this rule.

(b) Except as provided in subsection (c), following the initial notice given under subsection (a), the owner or operator of the public water system must give notice at least once every three (3) months by mail delivery (by direct mail or with the water bill) or by hand delivery, for as long as the violation or failure exists.

(c) In lieu of the requirements of subsections (a) and (b), the following apply:

(1) The owner or operator of a community water system in an area that is not served by a daily or weekly newspaper of general circulation must give notice as soon as possible, but no later than seventy-two (72) hours after the violation or failure for acute violations (as defined in subsection (a)) or within fourteen (14) days after the violation or failure (for any other violation) by hand delivery or by continuous posting in conspicuous places within the area served by the system. Posting must continue for as long as the violation or failure exists. Notice by hand delivery must be repeated at least every three (3) months as long as the violation or failure exists.

(2) The owner or operator of a noncommunity water system may give notice as soon as possible, but no later than seventy-two (72) hours after the violation or failure for acute violations (as defined in subsection (a)) or within fourteen (14) days after the violation or failure (for any other violation) by hand delivery or by continuous posting in conspicuous places within the area served by the system. Posting must continue for as long as the violation or failure exists. Notice by hand delivery must be repeated at least every three (3) months for as long as the violation or failure exists.

(d) The owner or operator of a public water system which fails to perform monitoring, fails to comply with a testing procedure established by this rule shall notify persons served by the system as follows:

(1) Except as provided in subdivision (3) or (4), the owner or operator of a public water system must give notice within three (3) months of the violation by publication in a daily newspaper of general circulation in the area served by the system. If the area served by a public water system is not served by a daily newspaper of general circulation, notice shall be given instead by publication in a weekly newspaper of general circulation serving the area.

(2) Except as provided in subdivision (3) or (4), following the initial notice given under subdivision (1), the owner or operator of the public water system must give notice at least once every three (3) months by mail delivery (by direct mail or with the water bill) or by hand delivery, for as long as the violation exists.

(3) In lieu of the requirements of subdivisions (1) and (2), the following apply:

(A) The owner or operator of a community water system in an area that is not served by a daily or weekly newspaper of general circulation must give notice within three (3) months of the violation by hand delivery or by continuous posting in conspicuous places within the area served by the system. Posting must continue for as long as the violation exists. Notice by hand delivery must be repeated at least every three (3) months for as long as the violation exists.

(B) The owner or operator of a noncommunity water system may give notice within three (3) months of the violation by hand delivery or by continuous posting in conspicuous places within the area served by the system. Posting must continue for as long as the violation exists. Notice by hand delivery must be repeated at least every three (3) months for as long as the violation exists.

(4) In lieu of the requirements of subdivisions (1) through (3), the owner or operator of a public water system, at the discretion of the commissioner, may provide less frequent notice for minor monitoring violations as defined by the commissioner, if EPA has approved the commissioner's application for a program revision under 40 CFR 142.16. Notice of such violations must be given no less frequently than annually.

(e) The owner or operator of a community water system must give a copy of the most recent public notice for:

(1) any outstanding violation of any MCL; or

(2) any treatment technique requirement;

to all new billing units or new hookups prior to or at the time service begins.

(f) Each notice required by this section must provide a clear and readily understandable explanation of the following:

(1) The violation.

(2) Any potential adverse health effects.

(3) The population at risk.

(4) The steps that the public water system is taking to correct the violation.

(5) The necessity for seeking alternative water supplies, if any.

(6) Any preventive measures the consumer should take until the violation is corrected.

Each notice shall be conspicuous and shall not contain unduly technical language, unduly small print, or similar problems that frustrate the purpose of the notice. Each notice shall include the telephone number of the owner, operator, or designee of the public water system as a source of additional information concerning the notice. Where appropriate, the notice shall be multilingual.

(g) All notices required under this section shall be submitted to the commissioner using the methods specified in section 13(e) of this rule.

[As amended at: 24 IR 3975.]

327 IAC 8-2-16 ------ Drinking water standards: public notification; required language for inorganic contaminants

(a) When providing the information on potential adverse health effects required by section 15 of this rule in notices of:

(1) violations of MCL or treatment technique requirements;

(2) the granting or the continued existence of variances; or

(3) failure to comply with a variance or exemption schedule;

the owner or operator of a public water system shall include the language specified in subsections (b) through (p) for each inorganic contaminant. (If language for a particular contaminant is not specified in subsections (b) through (p) at the time notice is required, this section does not apply.)

(b) Antimony. The water pollution control board has established drinking water standards and has determined that antimony is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in soils, ground water, and surface waters and is often used in the flame-retardant industry. It is also used in the manufacture of ceramics, glass, batteries, fireworks, and explosives. It may enter drinking water through the natural weathering of rock, industrial production, municipal waste disposal, or manufacturing processes. Antimony has been shown to decrease longevity and alter blood levels of cholesterol and glucose in laboratory animals, such as rats, when the animals are exposed to high levels during their life spans. The water pollution control board has set the drinking water standard for antimony at six-thousandths (0.006) of a milligram per liter to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to antimony.

(c) Asbestos. The water pollution control board has established drinking water standards and has determined that asbestos fibers greater than ten (10) micrometers in length are a health concern at certain levels of exposure. Most asbestos fibers in drinking water are less than ten (10) micrometers in length and occur from natural sources and from corroded asbestos-cement pipes in the distribution system. The major uses of asbestos were in the production of cements, floor tiles, paper products, paint, caulking, textiles, and plastics and in transportation-related applications. Also, asbestos was once a popular insulating and fire-retardant material. Inhalation studies have shown that various forms of asbestos produced lung tumors in laboratory animals. The available information on the risk of developing

gastrointestinal tract cancer associated with the ingestion of asbestos from drinking water is limited. However, ingestion of intermediate range chrysotile asbestos fibers greater than ten (10) micrometers in length is associated with causing benign tumors in male rats. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for asbestos at seven (7) million fibers greater than ten (10) micrometers in length per liter to reduce the potential risk of cancer or other adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to asbestos.

(d) Barium. The water pollution control board has established drinking water standards and has determined that barium is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in some aquifers that serve as sources of ground water and appears in drinking water after dissolving from naturally occurring minerals in the ground. Barium is used in oil and gas drilling muds, automotive paints, bricks, tiles, and aviation fuels. This chemical may damage the heart and cardiovascular system and is associated with high blood pressure in laboratory animals, such as rats, when the animals are exposed to high levels during their life spans. In humans, effects on blood pressure from barium in drinking water should not occur below two (2) milligrams per liter. Thus, the water pollution control board has set the drinking water standard for barium at two (2) milligrams per liter to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to barium.

(e) Beryllium. The water pollution control board has established drinking water standards and has determined that beryllium is a health concern at certain levels of exposure. This inorganic metal occurs naturally in soils, ground water, and surface waters and is often used in electrical equipment and electrical components. Beryllium generally enters drinking water from run-off from mining operations, discharge from processing plants, and disposal of waste improperly. Beryllium compounds have been associated with damage to the bones and lungs and with induction of cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. There is limited evidence to suggest that beryllium may pose a cancer risk via drinking water exposure. Therefore, the health assessment is based on noncancer effects with an extra uncertainty factor to account for possible carcinogenicity. The water pollution control board has set the drinking water standard for beryllium at four-thousandths (0.004) of a milligram per liter to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to beryllium.

(f) Cadmium. The water pollution control board has established drinking water standards and has determined that cadmium is a health concern at certain levels of exposure. Food consumption and cigarette smoking are common sources of general exposure. This inorganic metal is a contaminant in the metals used to galvanize pipe, and it generally enters drinking water by corrosion of the pipes or by improper waste disposal. Cadmium has been shown to damage the renal system in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the kidneys. The water pollution control board has set the drinking water standard for cadmium at five-thousandths (0.005) of a milligram per liter to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to cadmium.

(g) Chromium. The water pollution control board has established drinking water standards and has determined that chromium is a health concern at certain levels of exposure. This inorganic metal occurs naturally in the ground and is often used in metal electroplating. Chromium generally enters drinking water through run-off from old mining operations and improper waste disposal from plating operations. Chromium has been shown to damage the renal system, nervous system, and circulatory system of laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Some

humans who were exposed to high levels of chromium suffered liver and kidney damage, dermatitis, and respiratory problems. The water pollution control board has set the drinking water standard for chromium at one-tenth (0.1) of a milligram per liter to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to chromium.

(h) Copper. The water pollution control board has established drinking water standards and has determined that copper is a health concern at certain exposure levels. Copper, a reddish brown metal, is often used to plumb residential and commercial structures that are connected to water distribution systems. Copper generally contaminates drinking water as a corrosion byproduct and occurs as a result of the corrosion of copper pipes that remain in contact with water for a prolonged period of time. Copper is an essential nutrient, but at high doses it can cause stomach and intestinal distress, liver and kidney damage, and anemia. Persons with Wilson's disease may be at higher risk than the general public from exposure. The water pollution control board's drinking water regulations require all public water systems to install optimal corrosion control to minimize copper contamination resulting from the corrosion of plumbing materials. Public water systems servicing fifty thousand (50,000) people or fewer that have copper concentrations below one and three-tenths (1.3) parts per million in more than ninety percent (90%) of tap water samples (the action level) are not required to install or improve their treatment. Any water system that exceeds the action level must also monitor their source water to determine whether treatment to remove copper from source water is needed. Drinking water that meets these standards is associated with little or no risk and is considered safe with respect to copper.

(i) Cyanide. The water pollution control board has established drinking water standards and has determined that cyanide is a health concern at certain levels of exposure. This inorganic chemical is used in metal electroplating, steel processing, and in plastics, synthetic fabrics, and fertilizer products. Cyanide usually enters drinking water as a result of improper waste disposal. Cyanide has been shown to damage the spleen, brain, and liver of humans fatally poisoned with this chemical. The water pollution control board has set the drinking water standard for cyanide at two-tenths (0.2) of a milligram per liter to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to cyanide.

(j) Fluoride. The water pollution control board has established drinking water standards and has determined that fluoride is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in some aquifers that serve as sources of ground water and appears in drinking water after dissolving from naturally occurring minerals in the ground. Fluoride in children's drinking water at levels of approximately one (1) milligram per liter reduces the number of dental cavities. However, some children exposed to levels of fluoride greater than approximately two (2) milligrams per liter may develop dental fluorosis. Dental fluorosis, in its moderate and severe forms, is a brown staining and/or pitting of the permanent teeth. Families with children under the age of nine (9) are encouraged to seek other sources of water for their children to avoid the possibility of staining and pitting. Because dental fluorosis occurs only when developing teeth are exposed to elevated fluoride levels, households without children are not expected to be affected by this level of fluoride. In adults, exposure to a contaminant level of greater than four (4) milligrams per liter for many years may result, in some cases, of crippling skeletal fluorosis, a serious bone disorder. The water pollution control board has set the drinking water standard for fluoride at four (4) milligrams per liter to protect against the risk of adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to fluoride.

(k) Lead. The water pollution control board has established drinking water standards and has determined that lead is a health concern at certain exposure levels. Materials containing lead frequently have been used in the construction of water supply distribution systems and plumbing systems in private homes and other buildings. The most commonly found materials include service lines, pipes, brass and bronze fixtures, and solders and fluxes. The lead in these materials can contaminate drinking water as a result of the corrosion that takes place when water comes in contact with these materials. Lead can cause a variety of adverse

health effects in humans. At relatively low levels of exposure, these effects may include:

(1) interference with red blood cell chemistry;

(2) delays in normal physical and mental development in infants and young children;

(3) slight deficits in the attention span, hearing, and learning abilities of children; and

(4) slight increases in the blood pressure of adults.

The water pollution control board's drinking water regulations require all public water systems to optimize corrosion control to minimize lead contamination resulting from the corrosion of plumbing materials. Public water systems serving fifty thousand (50,000) persons or fewer that have lead concentrations below fifteen (15) parts per billion in more than ninety percent (90%) of tap water samples (the action level) have optimized their corrosion control treatment. Any water system that exceeds the action level must also monitor its source water to determine whether treatment to remove lead in source water is needed. Further, any water system that continues to exceed the action level after installation of corrosion control or source water treatment, or both, must eventually replace all lead service lines contributing in excess of fifteen (15) parts per billion of lead to drinking water. Any water system that exceeds the action level must also undertake a public education program to inform consumers of ways they can reduce their exposure to potentially high levels of lead in drinking water. Drinking water that meets these regulations is associated with little or no risk and should be considered safe with respect to lead.

(l) Mercury. The water pollution control board has established drinking water standards and has determined that mercury is a health concern at certain levels of exposure. This inorganic metal is used in electrical equipment and some water pumps. Mercury usually enters drinking water as a result of improper waste disposal. Mercury has been shown to damage the renal system of laboratory animals, such as rats, when the animals are exposed to high levels over their life spans. The water pollution control board has set the drinking water standard for mercury at two-thousandths (0.002) of a milligram per liter to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to mercury.

(m) Nitrate. The water pollution control board has established drinking water standards and has determined that nitrate poses an acute health concern at certain levels of exposure. Nitrate is used in fertilizer and is found in sewage and wastes from human and/or farm animals and generally enters drinking water from those activities. Excessive levels of nitrate in drinking water have caused serious illness and sometimes death in infants under six (6) months of age. It is caused because nitrate is converted to nitrite in the body, and nitrite interferes with the oxygen carrying capacity of the infant's blood. This illness is acute in that symptoms can develop rapidly in infants; in most cases, the infant's health deteriorates over a period of days. Symptoms of the illness include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. Local and state health authorities are the best source for information concerning alternate sources of drinking water. The water pollution control board has set the drinking water standard at ten (10) milligrams per liter for nitrate to protect against the risk of these adverse effects. The water pollution control board also has set a drinking water standard for nitrite at one (1) milligram per liter. To allow for the fact that the toxicity of nitrate and nitrite are additive, the water pollution control board also has established a standard for the sum of nitrate and nitrite at ten (10) milligrams per liter. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to nitrate.

(n) Nitrite. The water pollution control board has established drinking water standards and has determined that nitrite poses an acute health concern at certain levels of exposure. This inorganic chemical is used in fertilizers and is found in sewage and wastes from humans and/or farm animals and generally enters drinking water as a result of those activities. While excessive levels of nitrite in drinking water have not been observed, other sources of nitrite have caused serious illness and sometimes death in infants under six (6) months of age. It is caused because nitrite interferes with the oxygen carrying capacity of the infant's

blood. This illness is acute in that symptoms can develop rapidly in infants; in most cases, the infant's health deteriorates over a period of days. Symptoms of the illness include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. Local and state health authorities are the best source for information concerning alternate sources of drinking water. The water pollution control board has set the drinking water standard at one (1) milligram per liter for nitrite to protect against the risk of these adverse effects. The water pollution control board also has set a drinking water standard for nitrate (converted to nitrite in humans) at ten (10) milligrams per liter and for the sum of nitrate and nitrite at ten (10) milligrams per liter. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to nitrite.

(o) Selenium. The water pollution control board has established drinking water standards and has determined that selenium is a health concern at certain high levels of exposure. Notwithstanding, selenium is an essential nutrient at low levels of exposure. This inorganic chemical is found naturally in food and soils and is used in electronics, photocopy operations, glass, chemical and drug manufacture, and as a fungicide and feed additive. In humans, exposure to high levels of selenium over a long period of time has resulted in a number of adverse health effects, including a loss of feeling and control in the arms and legs. The water pollution control board has set the drinking water standard for selenium at five-hundredths (0.05) of a milligram per liter to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to selenium.

(p) Thallium. The water pollution control board has established drinking water standards and has determined that thallium is a health concern at certain high levels of exposure. This inorganic metal is found naturally in soils and is used in electronics, pharmaceuticals, and the manufacture of glass and alloys. Thallium has been shown to damage the kidneys, liver, brain, and intestines of laboratory animals when the animals are exposed to high levels over their life spans. The water pollution control board has set the drinking water standard for thallium at two-thousandths (0.002) of a milligram per liter to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to thallium.

(q) The commissioner may give notice to the public as required by this section on behalf of the owner or operator of the public water system if the commissioner complies with the requirements of this section. However, the owner or operator of the public water system remains legally responsible for ensuring that the requirements of this section are met.
[As amended at: 21 IR 55.]

327 IAC 8-2-17 ------ Drinking water standards: public notification; required language for organic contaminants

When providing the information on potential adverse health effects required by section 15(f) of this rule in notices of violations of MCL or treatment technique requirements, in notices of the granting or the continued existence of variances or exemptions, in notices of failure to comply with a variance or exemption schedule, the owner or operator of a public water system shall include the language specified as follows for each organic contaminant (If language for a particular contaminant is not specified in this section at the time notice is required, this section does not apply.):

(1) Acrylamide. The water pollution control board has established drinking water standards and has determined that acrylamide is a health concern at certain levels of exposure. Acrylamide has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time; sufficiently large doses of acrylamide are known to cause neurological injury. The water pollution control board has set the drinking water standard for acrylamide using a treatment

technique to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. As polymers made from acrylamide are sometimes used to treat water supplies to remove particulate contaminants, this treatment technique limits the amount of acrylamide in the polymer which may be added to drinking water. Drinking water systems which comply with this treatment technique have little or no risk and are considered safe with respect to acrylamide.

(2) Alachlor. The water pollution control board has established drinking water standards and has determined that alachlor is a health concern at certain levels of exposure. This organic chemical is a widely used pesticide. When soil and climatic conditions are favorable, alachlor may enter drinking water by run-off into surface water or by leaching into ground water. Alachlor has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for alachlor at two (2) parts per billion to reduce the risk of cancer or other adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to alachlor.

(3) Atrazine. The water pollution control board has established drinking water standards and has determined that atrazine is a health concern at certain levels of exposure. This organic chemical is an herbicide. When soil and climatic conditions are favorable, atrazine may enter drinking water by run-off into surface water or by leaching into ground water. Atrazine has been shown to affect the offspring of rats and the hearts of dogs when the animals are exposed to high levels over their life spans. The water pollution control board has set the drinking water standard for atrazine at three (3) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to atrazine.

(4) Benzene. The water pollution control board has established drinking water standards and has determined that benzene is a health concern at certain levels of exposure. Benzene is used as a solvent and degreaser of metals; also, it is a major component of gasoline. Drinking water contamination generally results from leaking underground gasoline and petroleum storage tanks or by improper waste disposal. This chemical has been associated with significantly increased risks of leukemia among certain industrial workers who were exposed to relatively large amounts of this chemical during their working careers. This chemical also has been shown to cause cancer in laboratory animals when the animals are exposed to high levels over their life spans. Chemicals that cause an increased risk of cancer among exposed industrial workers and laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. The water pollution control board has set the drinking water standard for benzene at five (5) parts per billion to reduce the risk of these adverse health effects. Drinking water which meets this standard is associated with little or no risk and should be considered safe with respect to benzene.

(5) Benzo[a]pyrene. The water pollution control board has established drinking water standards and has determined that benzo[a]pyrene is a health concern at certain levels of exposure. Cigarette smoke and charbroiled meats are common sources of general exposure. The major source of benzo[a]pyrene in drinking water occurs from the leaching from coal tar lining and sealants in water storage tanks. Benzo[a]pyrene has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. The water pollution control board has set the drinking water standard for benzo[a]pyrene at two-tenths (0.2) of a part per billion to protect against the risk of cancer. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to benzo[a]pyrene.

(6) Carbofuran. The water pollution control board has established drinking water standards and has determined that carbofuran is a health concern at certain levels of exposure. This organic chemical is a pesticide. When soil and climatic conditions are favorable, carbofuran may enter drinking water by run-off into surface water or by leaching into ground water. Carbofuran has been shown to damage the nervous and reproductive systems of laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Some humans who were exposed to relatively large amounts of this chemical during their working careers also suffered damage to the nervous system. Notwithstanding, the effects on the nervous system are generally rapidly reversible. The water pollution control board has set the drinking water standard for carbofuran at forty (40) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to carbofuran.

(7) Carbon tetrachloride. The water pollution control board has established drinking water standards and has determined that carbon tetrachloride is a health concern at certain levels of exposure. This chemical was once used as a popular household cleaning fluid, and it generally enters drinking water by improper waste disposal. Carbon tetrachloride has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels during their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. The water pollution control board has set the drinking water standard for carbon tetrachloride at five (5) parts per billion to reduce the risk of these adverse health effects. Drinking water which meets this standard is associated with little or no risk and should be considered safe with respect to carbon tetrachloride.

(8) Chlordane. The water pollution control board has established drinking water standards and has determined that chlordane is a health concern at certain levels of exposure. This organic chemical is a pesticide used to control termites, and it is not very mobile in soils. Chlordane usually enters drinking water after application near water supply intakes or wells. Chlordane has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for chlordane at two (2) parts per billion to reduce the risk of cancer or other adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to chlordane.

(9) Dalapon. The water pollution control board has established drinking water standards and has determined that dalapon is a health concern at certain levels of exposure. This organic chemical is a widely used herbicide. Dalapon may enter drinking water after application to control grasses in crops, drainage ditches, and along railroads. Dalapon has been shown to cause damage to the liver and kidneys in laboratory animals when the animals are exposed to high levels over their life spans. The water pollution control board has set the drinking water standard for dalapon at two hundred (200) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to dalapon.

(10) 1,2-dibromo-3-chloropropane (DBCP). The water pollution control board has established drinking water standards and has determined that DBCP is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, DBCP may enter drinking water by run-off into surface water or by leaching into ground water. DBCP has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who

are exposed over long periods of time. The water pollution control board has set the drinking water standard for DBCP at two-tenths (0.2) of a part per billion to reduce the risk of cancer or other adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to DBCP.

(11) ortho-Dichlorobenzene (o-dichlorobenzene). The water pollution control board has established drinking water standards and has determined that o-dichlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a solvent in the production of pesticides and dyes. O-dichlorobenzene generally enters water by improper waste disposal; it has been shown to damage the liver, kidneys, and blood cells of laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the liver, nervous system, and circulatory system. The water pollution control board has set the drinking water standard for o-dichlorobenzene at six hundred (600) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to o-dichlorobenzene.

(12) para-Dichlorobenzene. The water pollution control board has established drinking water standards and has determined that para-dichlorobenzene is a health concern at certain levels of exposure. This chemical is a component of deodorizers, moth balls, and pesticides, and it generally enters drinking water by improper waste disposal. Para-dichlorobenzene has been shown to cause liver and kidney damage in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals which cause adverse health effects in laboratory animals may also cause adverse health effects in humans who are exposed at lower levels over longer periods of time. The water pollution control board has set the drinking water standard for para-dichlorobenzene at seventy-five (75) parts per billion to reduce the risk of these adverse health effects. Drinking water which meets this standard is associated with little or no risk and should be considered safe with respect to para-dichlorobenzene.

(13) 1,2-Dichloroethane. The water pollution control board has established drinking water standards and has determined that 1,2-dichloroethane is a health concern at certain levels of exposure. This chemical is used as a cleaning fluid for fats, oils, waxes, and resins. This chemical has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels during their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. The water pollution control board has set the drinking water standard for 1,2-dichloroethane at five (5) parts per billion to reduce the risk of these adverse health effects. Drinking water which meets this standard is associated with little or no risk and should be considered safe with respect to 1,2-dichloroethane.

(14) 1,1-Dichloroethylene. The water pollution control board has established drinking water standards and has determined that 1,1-dichloroethylene is a health concern at certain levels of exposure. This chemical, used in industrial solvents that clean and degrease metals, enters drinking water by improper waste disposal. This chemical has been shown to cause liver and kidney damage in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause adverse effects in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. The water pollution control board has set the drinking water standard for 1,1dichloroethylene at seven (7) parts per billion to reduce the risk of these adverse health effects. Drinking water which meets this standard is associated with little or no risk and should be considered safe with respect to 1,1-dichloroethylene.

(15) cis-1,2-Dichloroethylene. The water pollution control board has established drinking water standards and has determined that cis-1,2-dichloroethylene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and an intermediate in chemical production. Cis-1,2-dichloroethylene generally enters water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and circulatory system of laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. The water pollution control board has set the drinking water standard for cis-1,2-dichloroethylene at seventy (70) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to cis-1,2dichloroethylene.

(16) trans-1,2-Dichloroethylene. The water pollution control board has established drinking water standards and has determined that trans-1,2-dichloroethylene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and an intermediate in chemical production. Trans-1,2-dichloroethylene generally enters drinking water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and circulatory system of laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. The water pollution control board has set the drinking water standard for trans-1,2-dichloroethylene at one hundred (100) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to trans-1,2-dichloroethylene.

(17) Dichloromethane. The water pollution control board has established drinking water standards and has determined that dichloromethane (methylene chloride) is a health concern at certain levels of exposure. This organic chemical is a widely used solvent, and it also is used in the manufacture of paint remover, metal degreaser, and aerosol propellant. Dichloromethane generally enters drinking water after improper discharge of waste. This chemical has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for dichloromethane at five (5) parts per billion to reduce the risk of cancer or other adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to dichloromethane.

(18) 2,4-Dichlorophenoxyacetic acid (2,4-D). The water pollution control board has established drinking water standards and has determined that 2,4-D is a health concern at certain levels of exposure. This organic chemical is used as a herbicide and an algae control in reservoirs. When soil and climatic conditions are favorable, 2,4-D may enter drinking water by run-off into surface water or by leaching into ground water. This chemical has been shown to damage the liver and kidneys of laboratory animals, such as rats, when the animals are exposed to high levels during their life spans. Some humans who were exposed to relatively large amounts of 2,4-D also suffered damage to the nervous system. The water pollution control board has set the drinking water standard for 2,4-D at seventy (70) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to 2,4-D.

(19) 1,2-Dichloropropane. The water pollution control board has established drinking water standards and has determined that 1,2-dichloropropane is a health concern at certain levels of exposure. This organic chemical is used as a solvent and a pesticide. When soil and climatic conditions are favorable, 1,2-dichloropropane

generally enters drinking water by run-off into surface water, by leaching into ground water, or through improper waste disposal. This chemical has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for 1,2-dichloropropane at five (5) parts per billion to reduce the risk of cancer or other adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to 1,2-dichloropropane.

(20) Di(2-ethylhexyl)adipate. The water pollution control board has established drinking water standards and has determined that di(2-ethylhexyl)adipate is a health concern at certain levels of exposure. This chemical is a widely used plasticizer in a variety of products, including synthetic rubber, food packaging materials, and cosmetics. Di(2-ethylhexyl)adipate may enter drinking water through improper waste disposal, and this chemical has been shown to damage the liver and testes in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. The water pollution control board has set the drinking water standard for di(2-ethylhexyl)adipate at four hundred (400) parts per billion to protect against the risk of adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to di(2-ethylhexyl)adipate.

(21) Di(2-ethylhexyl)phthalate. The water pollution control board has established drinking water standards and has determined that di(2-ethylhexyl)phthalate is a health concern at certain levels of exposure. This chemical is a widely used plasticizer, primarily used in the production of polyvinyl chloride (PVC) resins. Di(2-ethylhexyl)phthalate may enter drinking water through improper waste disposal, and this chemical has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. The water pollution control board has set the drinking water standard for di(2-ethylhexyl)phthalate at six (6) parts per billion to reduce the risk of cancer or other adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to di(2-ethylhexyl)phthalate.

(22) Dinoseb. The water pollution control board has established drinking water standards and has determined that dinoseb is a health concern at certain levels of exposure. Dinoseb is a widely used pesticide, and it generally enters drinking water after application on orchards, vineyards, and other crops. This chemical has been shown to damage the thyroid and reproductive organs in laboratory animals, such as rats, when the animals are exposed to high levels over their life spans. The water pollution control board has set the drinking water standard for dinoseb at seven (7) parts per billion to protect against the risk of adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to dinoseb.

(23) Diquat. The water pollution control board has established drinking water standards and has determined that diquat is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control terrestrial and aquatic weeds. Diquat may enter drinking water by run-off into surface water. This chemical has been shown to damage the liver, kidneys, and gastrointestinal tract and to cause cataract formation in laboratory animals, such as dogs and rats, when the animals are exposed to high levels over their life spans. The water pollution control board has set the drinking water standard for diquat at twenty (20) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to diquat.

(24) Endothall. The water pollution control board has established drinking water standards and has determined that endothall is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control terrestrial and aquatic weeds. Endothall may enter drinking water by run-off into surface water. This chemical has been shown to damage the liver, kidneys, gastrointestinal tract, and reproductive system of laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. The water pollution control board has set the drinking water standard for endothall at one hundred (100) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to endothall.

(25) Endrin. The water pollution control board has established drinking water standards and has determined that endrin is a health concern at certain levels of exposure. This organic chemical is a pesticide no longer registered for use in the United States. However, endrin persists in treated soils due to accumulation in sediments and aquatic and terrestrial biota. Endrin has been shown to damage the liver, kidneys, and heart in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. The water pollution control board has set the drinking water standard for endrin at two (2) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to endrin.

(26) Epichlorohydrin. The water pollution control board has established drinking water standards and has determined that epichlorohydrin is a health concern at certain levels of exposure. Polymers made from epichlorohydrin are sometimes used in the treatment of water supplies as a flocculent to remove particulates. Epichlorohydrin generally enters drinking water by improper use of these polymers. This chemical has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals may also increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for epichlorohydrin using a treatment technique to reduce the risk of cancer or other adverse health effects. This treatment technique limits the amount of epichlorohydrin in the polymer and the amount of the polymer which may be added to drinking water to remove particulates. Drinking water systems which comply with this treatment technique have little or no risk and are considered safe with respect to epichlorohydrin.

(27) Ethylbenzene. The water pollution control board has established drinking water standards and has determined that ethylbenzene is a health concern at certain levels of exposure. This organic chemical is a major component of gasoline. Ethylbenzene generally enters drinking water through improper waste disposal or from leaking gasoline storage tanks. This chemical has been shown to damage the kidneys, liver, and nervous system of laboratory animals, such as rats, when the animals are exposed to high levels during their life spans. The water pollution control board has set the drinking water standard for ethylbenzene at seven hundred (700) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to ethylbenzene.

(28) Ethylene dibromide (EDB). The water pollution control board has established drinking water standards and has determined that EDB is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, EDB enters drinking water by run-off into surface water or by leaching into ground water. EDB has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long

periods of time. The water pollution control board has set the drinking water standard of EDB at five-hundredths (0.05) of a part per billion to reduce the risk of cancer or other adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to EDB.

(29) Glyphosate. The water pollution control board has established drinking water standards and has determined that glyphosate is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control grasses and weeds. Glyphosate may enter drinking water by run-off into surface water. Glyphosate has been shown to cause damage to the liver and kidneys in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. The water pollution control board has set the drinking water standard for glyphosate at seven hundred (700) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to glyphosate.

(30) Heptachlor. The water pollution control board has established drinking water standards and has determined that heptachlor is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor may enter drinking water by run-off into surface water or by leaching into ground water. Heptachlor has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels during their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for heptachlor at four-tenths (0.4) of a part per billion to protect against the risk of cancer and other adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to heptachlor.

(31) Heptachlor epoxide. The water pollution control board has established drinking water standards and has determined that heptachlor epoxide is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor epoxide may enter drinking water by run-off into surface water or by leaching into ground water. Heptachlor epoxide has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels during their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for heptachlor epoxide at two-tenths (0.2) of a part per billion to protect against the risk of cancer and other adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to heptachlor epoxide.

(32) Hexachlorobenzene. The water pollution control board has established drinking water standards and has determined that hexachlorobenzene is a health concern at certain levels of exposure. This organic chemical is produced as an impurity in the manufacture of certain solvents and pesticides. Hexachlorobenzene has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels during their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for hexachlorobenzene at one (1) part per billion to protect against the risk of cancer and other adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to hexachlorobenzene.

(33) Hexachlorocyclopentadiene. The water pollution control board has established drinking water standards and has determined that hexachlorocyclopentadiene is a health concern at certain levels of exposure. This organic chemical is produced as

an intermediate in the manufacture of pesticides and flame retardants. Hexachlorocyclopentadiene may enter drinking water through discharge from production facilities. This chemical has been shown to damage the kidneys and stomach of laboratory animals when they are exposed to high levels during their life spans. The water pollution control board has set the drinking water standard for hexachlorocyclopentadiene at fifty (50) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to hexachlorocyclopentadiene.

(34) Lindane. The water pollution control board has established drinking water standards and has determined that lindane is a health concern at certain levels of exposure. This organic chemical is used as a pesticide. When soil and climatic conditions are favorable, lindane may enter drinking water by run-off into surface water or by leaching into ground water. Lindane has been shown to damage the liver, kidneys, and nervous and immune systems of laboratory animals, such as rats, mice, and dogs, when the animals are exposed to high levels during their life spans. Also, it has been shown to produce growth retardation in rats. The water pollution control board has set the drinking water standard for lindane at two-tenths (0.2) of a part per billion to protect against the risk of cancer and other adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to lindane.

(35) Methoxychlor. The water pollution control board has established drinking water standards and has determined that methoxychlor is a health concern at certain levels of exposure. This organic chemical is used as a pesticide. When soil and climatic conditions are favorable, methoxychlor may enter drinking water by run-off into surface water or by leaching into ground water. Methoxychlor has been shown to damage the liver, kidneys, and nervous and reproductive systems of laboratory animals, such as rats, when the animals are exposed to high levels during their life spans. Also, it has been shown to produce growth retardation in rats. The water pollution control board has set the drinking water standard for methoxychlor at forty (40) parts per billion to protect against the risk of cancer and other adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to methoxychlor.

(36) Monochlorobenzene. The water pollution control board has established drinking water standards and has determined that monochlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a solvent, and it generally enters drinking water through improper waste disposal. This chemical has been shown to damage the liver, kidneys, and nervous system of laboratory animals, such as rats and mice, when the animals are exposed to high levels during their life spans. The water pollution control board has set the drinking water standard for monochlorobenzene at one hundred (100) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to monochlorobenzene.

(37) Oxamyl. The water pollution control board has established drinking water standards and has determined that oxamyl is a health concern at certain levels of exposure. This organic chemical is used as a pesticide for the control of insects and other pests and generally enters drinking water by run-off into surface water or leaching into ground water. Oxamyl has been shown to damage the kidneys of laboratory animals, such as rats, when they are exposed to high levels over their life spans. The water pollution control board has set the drinking water standard for oxamyl at two hundred (200) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to oxamyl.

(38) Pentachlorophenol. The water pollution control board has established drinking water standards and has determined that pentachlorophenol is a health concern at

certain levels of exposure. This organic chemical is used as a wood preservative, herbicide, disinfectant, and defoliant. Pentachlorophenol generally enters drinking water by run-off into surface water or leaching into ground water. This chemical has been shown to produce adverse reproductive effects and to damage the liver and kidneys of laboratory animals, such as rats, when they are exposed to high levels during their life spans. Similarly, some humans who were exposed to relatively large amounts of this chemical also suffered damage to the liver and kidneys. Pentachlorophenol has also been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for pentachlorophenol at one (1) part per billion to protect against the risk of cancer or other adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to pentachlorophenol.

(39) Picloram. The water pollution control board has established drinking water standards and has determined that picloram is a health concern at certain levels of exposure. This organic chemical is used as a pesticide for broadleaf weed control. Picloram may enter drinking water by run-off into surface water or leaching into ground water as a result of pesticide application and improper waste disposal. Picloram has been shown to cause damage to the kidneys and liver in laboratory animals, such as rats, when they are exposed to high levels over their life spans. The water pollution control board has set the drinking water standard for picloram at five hundred (500) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to picloram.

(40) Polychlorinated biphenyls (PCBs). The water pollution control board has established drinking water standards and has determined that PCBs are a health concern at certain levels of exposure. These organic chemicals were once widely used in electrical transformers and other industrial equipment. PCBs generally enter drinking water through improper waste disposal or leaking electrical or industrial equipment. This chemical has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for PCBs at five-tenths (0.5) of a part per billion to reduce the risk of cancer or other adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to PCBs.

(41) Simazine. The water pollution control board has established drinking water standards and has determined that simazine is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control annual grasses and broadleaf weeds. After application, simazine may enter drinking water by run-off into surface water or leaching into ground water. Simazine may cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels during their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for simazine at four (4) parts per billion to reduce the risk of cancer or other adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to simazine.

(42) Styrene. The water pollution control board has established drinking water standards and has determined that styrene is a health concern at certain levels of exposure. This organic chemical commonly is used to make plastics and sometimes is used as a component for drinking water treatment. Styrene may enter drinking water from improper waste disposal. This chemical has been shown to damage the

liver and nervous system in laboratory animals when they are exposed to high levels during their life spans. The water pollution control board has set the drinking water standard for styrene at one hundred (100) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to styrene.

(43) 2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) (dioxin). The water pollution control board has established drinking water standards and has determined that dioxin is a health concern at certain levels of exposure. This organic chemical is an impurity in the production of some pesticides, and it enters drinking water by industrial discharge of wastes. Dioxin has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for dioxin at threehundred thousandths (0.00003) of a part per billion to reduce the risk of cancer or other adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to dioxin.

(44) Tetrachloroethylene. The water pollution control board has established drinking water standards and has determined that tetrachloroethylene is a health concern at certain levels of exposure. This organic chemical has been a popular solvent, particularly for dry cleaning, and it generally enters drinking water through improper waste disposal. Tetrachloroethylene has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for tetrachloroethylene at five (5) parts per billion to reduce the risk of cancer or other adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to tetrachloroethylene.

(45) Toluene. The water pollution control board has established drinking water standards and has determined that toluene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and in the manufacture of aviation fuel. Toluene generally enters drinking water by improper waste disposal or leaking underground storage tanks. Toluene has been shown to damage the kidneys, nervous system, and circulatory system of laboratory animals, such as rats and mice, when the animals are exposed to high levels during their life spans. Some industrial workers who were exposed to relatively large amounts of toluene during their working careers also suffered damage to the liver, kidneys, and nervous system. The water pollution control board has set the drinking water standard for toluene at one thousand (1,000) parts per billion to protect against the risk of adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to toluene.

(46) Toxaphene. The water pollution control board has established drinking water standards and has determined that toxaphene is a health concern at certain levels of exposure. This organic chemical was once a pesticide widely used on cotton, corn, soybeans, pineapples, and other crops. When soil and climatic conditions are favorable, toxaphene may enter drinking water by run-off into surface water or by leaching into ground water. This chemical has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The water pollution control board has set the drinking water standard for toxaphene at three (3) parts per billion to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water

that meets this standard is associated with little or no risk and is considered safe with respect to toxaphene.

(47) 1,2,4-Trichlorobenzene. The water pollution control board has established drinking water standards and has determined that 1,2,4-trichlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a dye carrier and as a precursor in herbicide manufacture, and it generally enters drinking water by discharges from industrial activities. This chemical has been shown to cause damage to several organs, including the adrenal glands. The water pollution control board has set the drinking water standard for 1,2,4-trichlorobenzene at seventy (70) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to 1,2,4-trichlorobenzene.

(48) 1,1,1-Trichloroethane. The water pollution control board has established drinking water standards and has determined that 1,1,1-trichloroethane is a health concern at certain levels of exposure. This chemical is used to clean and degrease metals, and generally enters drinking water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and circulatory system of laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Some industrial workers who were exposed to relatively large amounts of this chemical during their working careers suffered damage to the liver, nervous system, and circulatory system. Chemicals which cause adverse health effects among exposed laboratory animals and industrial workers also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. The water pollution control board has set the drinking water standard for 1,1,1trichloroethane at two hundred (200) parts per billion to protect against the risk of these adverse health effects. Drinking water which meets this standard is associated with little or no risk and should be considered safe with respect to 1,1,1-trichloroethane.

(49) 1,1,2-Trichloroethane. The water pollution control board has established drinking water standards and has determined 1,1,2-trichloroethane is a health concern at certain levels of exposure. This organic chemical is an intermediate in the production of 1,1-dichloroethylene, and it generally enters drinking water through the discharge of industrial wastes. This chemical has been shown to damage the kidneys and liver of laboratory animals, such as rats, when they are exposed to high levels during their life spans. The water pollution control board has set the drinking water standard for 1,1,2-trichloroethane at five (5) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and should be considered safe with respect to 1,1,2-trichloroethane.

(50) Trichloroethylene. The water pollution control board has established drinking water standards and has determined that trichloroethylene is a health concern at certain levels of exposure. This chemical is a common metal cleaning and dry cleaning fluid, and it enters drinking water through improper waste disposal. Trichloroethylene has been shown to cause cancer in laboratory animals, such as rats and mice, when the animals are exposed to high levels over their life spans. Chemicals that cause cancer in laboratory animals may also increase the risk of cancer in humans who are exposed at lower levels over long periods of time. The water pollution control board has set the drinking water standard for trichloroethylene at five (5) parts per billion to reduce the risk of cancer or other adverse health effects. Drinking water which meets this standard is associated with little or no risk and should be considered safe with respect to trichloroethylene.

(51) 2,4,5-Trichloro-phenoxy-propionic acid (2,4,5-TP) (silvex). The water pollution control board has established drinking water standards and has determined that 2,4,5-TP is a health concern at certain levels of exposure. This organic chemical is used as a herbicide. When soil and climatic conditions are favorable, 2,4,5-TP

may enter drinking water by run-off into surface water or by leaching into ground water. This chemical has been shown to damage the liver and kidneys of laboratory animals, such as rats and dogs, when the animals are exposed to high levels during their life spans. Some industrial workers who were exposed to relatively large amounts of this chemical during their working careers also suffered damage to the nervous system. The water pollution control board has set the drinking water standard for 2,4,5-TP at fifty (50) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to 2,4,5-TP.

(52) Vinyl chloride. The water pollution control board has established drinking water standards and has determined that vinyl chloride is a health concern at certain levels of exposure. Vinyl chloride, used in industrial solvents that clean and degrease metals, enters drinking water by improper waste disposal. Vinyl chloride has been associated with an increased risk of cancer among certain industrial workers who were exposed to relatively large amounts of this chemical during their working careers. This chemical also has been shown to cause cancer in humans who are exposed to lower levels over long periods of time. The water pollution control board has set the drinking water standard for vinyl chloride at two (2) parts per billion to reduce the risk of these adverse health effects. Drinking water which meets this standard is associated with little or no risk and should be considered safe with respect to vinyl chloride.

(53) Xylenes. The water pollution control board has established drinking water standards and has determined that xylenes are a health concern at certain levels of exposure. This organic chemical is used in the manufacture of aviation fuel, quartz crystal oscillators, perfumes, and insect repellents, as solvent for paints, lacquers, varnishes, inks, dyes, and adhesives, and as a cleaner and degreaser of metals. Xylenes usually enter drinking water through improper waste disposal. Xylenes have been shown to damage the liver, kidneys, and nervous system of laboratory animals, such as rats and dogs, when the animals were exposed to high levels during their life spans. Some humans who were exposed to relatively large amounts of xylenes also suffered damage to the nervous system. The water pollution control board has set the drinking water standard for xylenes at ten thousand (10,000) parts per billion to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little or no risk and is considered safe with respect to xylenes.

[As amended at: 21 IR 58.]

327 IAC 8-2-18 ------ Drinking water standards: public notification; required language for microbiological contaminants

(a) When providing the information on potential adverse health effects required by section 15(f) of this rule in notices of violations of MCLs for treatment technique requirements, in notices of the granting or the continued existence of variances, or in notices of failure to comply with a variance schedule, the owner or operator of a public water system shall include the language specified as follows for each microbiological contaminant (If language for a particular contaminant is not specified below at the time notice is required, this section does not apply.):

(1) This subdivision concerning total coliforms is for use when there is a violation of section 7(a) of this rule and not a violation of section 7(b) of this rule. The Indiana department of environmental management sets drinking water standards and has determined that the presence of total coliforms is possibly a health concern. Total coliforms are common in the environment and are generally not harmful themselves. The presence of these bacteria in drinking water, however, generally is a result of a problem with water treatment or the pipes which distribute the water and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly

jaundice and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. The Indiana department of environmental management has set an enforceable drinking water standard for total coliforms to reduce the risk of these adverse health effects. Under the standard, no more than five percent (5%) of the samples collected during a month can contain these bacteria, except that systems collecting fewer than forty (40) samples per month that have one (1) total coliform-positive sample per month are not violating the standard. Drinking water which meets this standard is usually not associated with a health risk from diseasecausing bacteria and should be considered safe.

(2) This subdivision concerning fecal coliforms or E. coli is for use when there is a violation of section 7(b) of this rule or section 7(a) and 7(b) of this rule. The Indiana department of environmental management sets drinking water standards and has determined that the presence of fecal coliforms or E. coli is a serious health concern. Fecal coliforms and E. coli are generally not harmful themselves, but their presence in drinking water is serious because they usually are associated with sewage or animal wastes. The presence of these bacteria in drinking water is generally a result of a problem with water treatment or the pipes which distribute the water and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice and associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. The Indiana department of environmental management has set an enforceable drinking water standard for fecal coliforms and E. coli to reduce the risk of these adverse health effects. Under this standard all drinking water samples must be free of these bacteria. Drinking water which meets this standard is associated with little or none of this risk and should be considered safe. State and local health authorities recommend that consumers take the following precautions: (to be inserted by the public water system, according to instructions from state or local authorities).

(3) This subdivision concerning microbiological contaminants is for use when there is a violation of the treatment technique requirements for filtration and disinfection. The Indiana department of environmental management sets drinking water standards and has determined that the presence of microbiological contaminants is a health concern at certain levels of exposure. If water is inadequately treated, microbiological contaminants in that water may cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. The Indiana department of environmental management has set enforceable requirements for treating drinking water to reduce the risk of these adverse health effects. Treatment such as filtering and disinfecting the water removes or destroys microbiological contaminants. Drinking water which is treated to meet Indiana department of environmental management requirements is associated with little to none of this risk and should be considered safe.

(b) The commissioner may give notice to the public required by this section on behalf of the owner or operator of the public water system if the commissioner complies with the requirements of this section. However, the owner or operator of the public water system remains legally responsible for ensuring that the requirements of this section are met.
[As amended at: 16 IR 2166.]

327 IAC 8-2-19 ------ Drinking water standards: public notification requirements pertaining to lead

(a) Except as provided in subsection (c), by June 19, 1988, the owner or operator of each community water system and each nontransient, noncommunity water system shall issue notice to persons served by the system that may be affected by lead contamination of their drinking water.

(b) The commissioner may require subsequent notices. The owner or operator shall provide notice under this section even if there is no violation of the MCL for lead.

(c) Notice under subsection (a) is not required if the system demonstrates to the commissioner that the water system, including the residential and nonresidential portions connected to the water system, are lead free. For purposes of this section, the term "lead free" when used with respect to solders and flux refers to solders and flux containing not more than two-tenths percent (0.2%) lead, and when used with respect to pipes and pipe fittings refers to pipes and pipe fittings containing not more than eight percent (8%) lead.

(d) Notice shall be given to persons served by the system by:

(1) three (3) newspaper notices, one (1) for each of three (3) consecutive months and the first no later than June 19, 1988;

(2) the water bill or in a separate mailing by June 19, 1988; or

(3) once by hand delivery by June 19, 1988.

(e) For nontransient noncommunity water systems, notice may be given by continuous posting. If posting is used, the notice shall be posted in a conspicuous place in the area served by the system and start no later than June 19, 1988, and continue for three (3) months.

(f) Notices issued under this section shall include the following:

(1) Provide a clear and readily understandable explanation of the potential sources of lead in drinking water, potential adverse health effects, reasonably available methods of mitigating known or potential lead content in drinking water, any steps the water system is taking to mitigate lead content in drinking water, and the necessity for seeking alternative water supplies, if any. Use of the mandatory language in subsection (h) in the notice will be sufficient to explain potential adverse health effects.

(2) Include specific advice on how to determine if materials containing lead have been used in homes or the water distribution system, and how to minimize exposure to water likely to contain high levels of lead. Each notice shall be conspicuous and shall not contain unduly technical language, unduly small print, or similar problems that frustrate the purpose of the notice. Each notice shall contain the telephone number of the owner, operator, or designee of the public water system as a source of additional information regarding the notice. Where appropriate, the notice shall be multilingual.

(g) Optional information to be given may be that each notice should advise persons served by the system to use only the cold water faucet for drinking and for use in cooking or preparing baby formula, and to run the water until it gets as cold as it is going to get before each use. If there has recently been major water use in the household, such as showering or bathing, flushing toilets, or doing laundry with cold water, flushing the pipes should take five (5) to thirty (30) seconds; if not, flushing the pipes could take as long as several minutes. Each notice should also advise persons served by the system to check to see if lead pipes, solder, or flux have been used in plumbing that provides tap water and to ensure that new plumbing and plumbing repairs use lead free materials. The only way to be sure of the amount of lead in the household water is to have the water tested by a competent laboratory. Testing is especially important to apartment dwellers because flushing may not be effective in high-rise buildings that have lead-soldered central piping. As appropriate, the notice should provide information on testing.

(h) When providing the information in public notices required under subsection (f) on the potential adverse health effects of lead in drinking water, the owner or operator of the water system shall include the following specific language in the notice:

"The Indiana Department of Environmental Management sets drinking water standards and has determined that lead is a health concern at certain levels of exposure. There is currently a standard of 0.050 parts per million. Based on new health information, the Indiana Department of Environmental Management is likely to lower this standard significantly.

Part of the purpose of this notice is to inform you of the potential adverse health effects of lead. This is being done even though your water may not be in violation of the current standard.

Indiana Department of Environmental Management and others are concerned about lead in drinking water. Too much lead in the human body can cause serious damage to the brain, kidneys, nervous system, and red blood cells. The greatest risk, even with short-term exposure, is to young children and pregnant women.

Lead levels in your drinking water are likely to be highest:

- if your home or water system has lead pipes, or
- if your home has copper pipes with lead solder, and
- if the home is less than five years old, or
- if you have soft or acidic water, or
- if water sits in the pipes for several hours."

(i) The commissioner may give notice to the public required by this section on behalf of the owner or operator of the water system if the commissioner meets the requirements of subsection (d) and the notice contains all the information specified in subsections (f) and (h). However, the owner or operator of the water system remains legally responsible for ensuring that the requirements of this section are met.

[As added at: 14 IR 1037.]

327 IAC 8-2-20 ------ Drinking water standards: record maintenance

Any owner or operator of a public water system subject to the provisions of this rule shall retain on its premises or at a convenient location near its premises the following records:

(1) Records of bacteriological analyses made under this rule shall be kept for not less than five (5) years. Records of chemical and radiological analyses made under this rule shall be kept for not less than ten (10) years. Actual laboratory reports may be kept, or data may be transferred to tabular summaries, provided that the following information is included:

(A) The date, place, and time of sampling, and the name of the person who collected the sample.

(B) Identification of the sample as to whether it was a routine distribution system sample, check sample, raw or process water sample, or other special purpose sample.

(C) Date of analysis.

(D) Laboratory and person responsible for performing analysis.

(E) The analytical technique/method used.

(F) The results of the analysis.

(2) Records of action taken by the system to correct violations of this rule shall be kept for not less than three (3) years after the last action taken with respect to the particular violation involved.

(3) Copies of any written reports, summaries, or communications relating to sanitary surveys of the system conducted by the system itself, by a private consultant, or by any local, state, or federal agency, shall be kept for not less than ten (10) years after completion of the sanitary survey involved.

(4) Records concerning a variance granted to the system shall be kept for not less than five (5) years after the expiration of variance.

[As added at: 14 IR 1038.]

327 IAC 8-2-21 ------ Drinking water standards: special monitoring for sodium

(a) Suppliers of water for community public water systems shall collect and analyze one (1) sample per treatment plant at the entry point of the distribution system for the determination of sodium concentration levels. Samples must be collected and analyzed annually for systems utilizing surface water sources in whole or in part, and at least every three (3) years for systems utilizing solely ground water sources. The minimum number of samples required to be taken by the system shall be based on the number of treatment plants used by the system, except that multiple wells drawing raw water from a single aquifer may, with the commissioner's approval, be considered one (1) treatment plant for determining the minimum number of samples. The supplier of water may be required by the commissioner to collect and analyze water samples for sodium more frequently in locations where the sodium content is variable.

(b) The supplier of water shall report to the commissioner the results of the analyses for sodium within the first ten (10) days of the month following the month in which the sample results were received or within the first ten (10) days following the end of the required monitoring period as stipulated by the commissioner, whichever of these is first. If more than annual sampling is required, the supplier shall report the average sodium concentration within ten (10) days of the month following the month in which the analytical result of the last sample used for the annual average was received. Systems shall submit information to the commissioner using the methods specified in section 13(e) of this rule.

(c) The supplier of water shall notify the commissioner and appropriate local public health officials of the sodium levels by written notice by direct mail within three (3) months. A copy of each notice required to be provided by this subsection shall be sent to the commissioner within ten (10) days of its issuance. The supplier of water is not required to notify the commissioner and appropriate local public health officials of the sodium levels where the commissioner provides such notices in lieu of the supplier.

(d) Analyses for sodium shall be performed by the following methods:

(1) Inductively coupled plasma, Method 200.7*.

(2) Atomic absorption; direct aspiration, Method 3111B*.

*Methods referenced in this section may be obtained as follows:

(1) Method 200.7 may be found in "Methods for the Determination of Metals in Environmental Samples-Supplement 1", EPA-600/R-94-111, May 1994, available from NTIS, PB95-125472, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.

(2) Method 3111B may be found in "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, or "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995, American Public Health Association, available from the American Public Health Association, 1015 Fifteenth Street N.W., Washington, D.C. 20005. Either edition may be used.

These methods are available for copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

[As amended at: 24 IR 3977.]

327 IAC 8-2-22 ------ Drinking water standards: special monitoring for corrosivity characteristics and lead ban

(a) Community water supply systems shall identify whether the following construction materials are present in their piping, storage structures, pumps, and controls used to deliver water to the public, and report to the commissioner:

(1) Lead from piping solder, caulking, interior lining of distribution mains, alloys, and home plumbing.

(2) Copper from piping and alloys, service lines, and home plumbing.

(3) Galvanized piping, service lines, and home plumbing.

(4) Ferrous piping materials such as cast iron and steel.

(5) Asbestos cement pipe.

(b) In addition, the commissioner may require identification and reporting of other construction materials present in their piping, storage structures, pumps, and controls used to deliver water to the public that may contribute contaminants to the drinking water, such as:

(1) vinyl lined asbestos cement pipe;

(2) coal tar lined pipes and tanks; and

(3) solders, flux, pipes, and pipe fittings not in compliance with 675 IAC 16, the Indiana Plumbing Code.

[As amended at: 21 IR 68.]

327 IAC 8-2-24 ------ Drinking water standards: use of noncentralized treatment devices

Public water systems shall not use bottled water to achieve compliance with an MCL. (Upon approval by the commissioner, bottled water, point-of-use, or point-of-entry treatment devices may be used on a temporary basis to avoid an unreasonable risk to health.)

[As amended at: 24 IR 3977.]

327 IAC 8-2-29 ------ Drinking water standards: reporting and public notification; unregulated contaminants

(a) The requirements of this section only apply to the contaminants listed in section 23 of this rule.

(b) The owner or operator of a community water system or nontransient noncommunity water system who is required to monitor under section 23 of this rule shall send a copy of the results of such monitoring within thirty (30) days of receipt and a copy of any public notice issued under subsection (d) to the commissioner.

(c) The community water system or nontransient noncommunity water system shall furnish the following information to the commissioner for each sample analyzed under section 23 of this rule:

(1) Results of all analytical methods, including negatives.

(2) Name and address of the system that supplied the sample.

(3) Contaminants.

(4) Analytical methods used.

(5) Date, time, and place of the sample and the name of the person who collected the sample.

(6) Date of analysis, laboratory, and person responsible for performing the analysis.

(7) Identification of sample as to whether raw plant tap or distribution sample.

(d) The owner or operator shall notify persons served by the system of the availability of the results of sampling conducted under section 23 of this rule by including a notice in the first set of water bills issued by the system after the receipt of the results or written notice within three (3) months. The notice shall identify a person and telephone number to contact for information on the monitoring results. For surface water systems, public notification is required only after the first quarter's monitoring and must include a statement that additional monitoring will be conducted for three (3) more quarters with the results available upon request.

(e) The commissioner may give notice to the public required by this section for those systems having no detectable unregulated contaminants.

[As added at: 14 IR 1046.]

327 IAC 8-2-30 ------ Drinking water standards: maximum contaminant level goals; organic compounds

(a) MCLGs are zero (0) for the following organic compounds:

(1) Benzene.
(2) Vinyl chloride.
(3) Carbon tetrachloride.
(4) 1,2-dichloroethane.
(5) Trichloroethylene.
(6) Acrylamide.
(7) Alachlor.
(8) Chlordane.
(9) Dibromochloropropane.
(10) 1,2-dichloropropane.
(11) Epichlorohydrin.
(12) Ethylene dibromide.
(13) Heptachlor.
(14) Heptachlor epoxide.
(15) Pentachlorophenol.
(16) Polychlorinated biphenyls (PCBs).
(17) Tetrachloroethylene.
(18) Toxaphene.
(19) Benzo[a]pyrene.
(20) Dichloromethane.
(21) Di(2-ethylhexyl)phthalate.
(22) Hexachlorobenzene.
(23) 2,3,7,8-TCDD (dioxin).

(b) MCLGs for the following organic compounds are as follows:

Contaminant	MCLG in Milligrams Per Liter
1,1-dichloroethylene	0.007
1,1,1-trichloroethane	0.20
para-dichlorobenzene	0.075
Aldicarb	0.001
Aldicarb sulfoxide	0.001
Aldicarb sulfone	0.001
Atrazine	0.003
Carbofuran	0.04
Ortho-dichlorobenzene	0.6
cis-1,2-dichloroethylene	0.07
trans-1,2-dichloroethylene	0.1
2,4-D	0.07
Ethylbenzene	0.7
Lindane	0.0002
Methoxychlor	0.04
Monochlorobenzene	0.1
Styrene	0.1

Toluene	1
2,4,5-TP	0.05
Xylenes	10
Dalapon	0.2
Di(2-ethylhexyl)adipate	0.4
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Endrin	0.002
Glyphosate	0.7
Hexachlorocyclopentadiene	0.05
Oxamyl (vydate)	0.2
Picloram	0.5
Simazine	0.004
1,2,4-trichlorobenzene	0.07
1,1,2-trichloroethane	0.003

[As amended at: 18 IR 66.]

327 IAC 8-2-31 ------ Drinking water standards: maximum contaminant level goals; microbiological contaminants

Maximum contaminant level goals (MCLGs) are zero (0) for the following microbiological contaminants:

(1) Giardia lamblia.

(2) Viruses.

(3) Legionella.

(4) Total coliforms (including fecal coliforms and Escherichia coli).

[As added at: 14 IR 1047.]

327 IAC 8-2-32 ------ Drinking water standards: alternate analytical techniques

With the written permission of the commissioner and concurrence of the administrator, an alternate analytical technique may be employed. An alternate technique shall be accepted only if it is substantially equivalent to the prescribed test in both precision and accuracy as it relates to the determination of compliance with any MCL. The use of the alternate analytical technique shall not decrease the frequency of monitoring required by this rule.

[As added at: 14 IR 1047.]

327 IAC 8-2-33 ------ Drinking water standards: certified laboratories

(a) For the purpose of determining compliance with this rule, samples may be considered only if they have been analyzed by a laboratory using methods specified in this rule.

(b) Nothing in this rule shall be construed to preclude the commissioner or any duly designated representative of the commissioner from taking samples or from using the results from such samples to determine compliance by a supplier of water with the applicable requirements of this rule.

[As amended at: 24 IR 3978.]

327 IAC 8-2-34 ------ Drinking water standards: maximum contaminant level goals; inorganic contaminants

MCLGs for the following contaminants are as indicated:

Contaminant	MCLG in Milligrams Per Liter
Fluoride	4.0
Asbestos	7 million fibers per liter (longer than 10 micrometers)
Barium	2
Cadmium	0.005
Chromium	0.1
Copper	1.3
Lead	0
Mercury	0.002
Nitrate	10 (as nitrogen)
Nitrite	1 (as nitrogen)
Total nitrate + nitrite	10 (as nitrogen)
Selenium	0.05
Antimony	0.006
Beryllium	0.004
Cyanide (as free cyanide)	0.2
Nickel	0.1
Thallium	0.0005

[As added at: 18 IR 67.]

327 IAC 8-2-35 ------ Drinking water standards: treatment techniques

(a) The requirements of this section constitute national primary drinking water regulations. These regulations establish treatment techniques in lieu of MCLs for specified contaminants.

(b) Each public water system must certify annually in writing to the commissioner (using third party or manufacturer's certification) that when acrylamide and epichlorohydrin are used in drinking water systems, the combination (or product) of dose and monomer level does not exceed the levels specified as follows:

(1) Acrylamide equals five-hundredths percent (0.05%) dosed at one (1) part per million or equivalent.

(2) Epichlorohydrin equals one-hundredth percent (0.01%) dosed at twenty (20) parts per million or equivalent.

(c) Certifications can rely on manufacturers or third parties, as approved by the commissioner.

[As added at: 18 IR 67.]

327 IAC 8-2-36 ------ Drinking water standards: general requirements; lead and copper

(a) The requirements of this section and sections 37 through 47 of this rule constitute the national primary drinking water regulations for lead and copper. Unless otherwise indicated, each section applies to community water systems and nontransient noncommunity water systems (hereinafter referred to as water systems or systems).

(b) This section and sections 37 through 47 of this rule establish a treatment technique that includes requirements for corrosion control treatment, lead service line replacement, and public education. These requirements are triggered, in some cases, by lead and copper action levels measured in samples collected at consumers' taps.

(c) The following are requirements for lead and copper action levels:

(1) The lead action level is exceeded if the concentration of lead in more than ten percent (10%) of tap water samples collected during any monitoring period conducted in accordance with section 37 of this rule is greater than fifteenthousandths (0.015) milligram per liter (i.e., if the ninetieth percentile lead level is greater than fifteen-thousandths (0.015) milligram per liter).

(2) The copper action level is exceeded if the concentration of copper in more than ten percent (10%) of tap samples collected during any monitoring period conducted in accordance with section 37 of this rule is greater than one and threetenths (1.3) milligram per liter (i.e., if the ninetieth percentile copper level is greater than one and three-tenths (1.3) milligram per liter).

(3) The ninetieth percentile lead and copper levels shall be computed as follows:

(A) The results of all lead or copper samples taken during a monitoring period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number one (1) for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level shall be equal to the total number of samples taken.

(B) The number of samples taken during the monitoring period shall be multiplied by nine-tenths (0.9).

(C) The contaminant concentration in the numbered sample yielded by the calculation in clause (B) is the ninetieth percentile contaminant level.

(D) For water systems serving fewer than one hundred (100) people that collect five (5) samples per monitoring period, the ninetieth percentile is computed by taking the average of the highest and second highest concentrations.

(d) The following are requirements for corrosion control treatment:

(1) All water systems shall install and operate optimal corrosion control treatment as defined in section 41 of this rule.

(2) Any water system that complies with the applicable corrosion control treatment requirements specified by the commissioner under sections 40 and 41 of this rule shall be deemed in compliance with the treatment requirement contained in subdivision (1).

(e) Any system exceeding the lead or copper action level shall implement all applicable source water treatment requirements specified by the state under section 42 of this rule.

(f) Any system exceeding the lead action level after implementation of applicable corrosion control and source water treatment requirements shall complete the lead service line replacement requirements contained in section 43 of this rule.

(g) Any system exceeding the lead action level shall implement the public education requirements contained in section 44 of this rule.

(h) Tap water monitoring for lead and copper, monitoring for water quality parameters, source water monitoring for lead and copper, and analyses of the monitoring results under this subsection shall be completed in compliance with sections 37 through 39 and 45 of this rule.

(i) Systems shall report to the commissioner any information required by the treatment provisions of this subsection and section 46 of this rule.

(j) Systems shall maintain records in accordance with section 47 of this rule.

(k) Failure to comply with the applicable requirements of this section and sections 37 through 47 of this rule shall constitute a violation of the drinking water regulations for lead or copper, or both.

[As added at: 18 IR 67.]

327 IAC 8-2-37 ------ Drinking water standards: monitoring requirements for lead and copper in tap water

(a) The following are requirements for sample site locations:

(1) By the applicable date of commencement of monitoring under subsection (d)(1), each water system shall complete a materials evaluation of its distribution system in order to identify a pool of targeted sampling sites that meet the requirements of this section and that are sufficiently large to ensure that the water system can collect the number of lead and copper tap samples required in subsection (c). All sites from which first draw samples are collected shall be selected from this pool of targeted sampling sites. Sampling sites may not include faucets that have point-of-use or point-of-entry treatment devices designated to remove inorganic contaminants.

(2) A water system shall use the information on lead, copper, and galvanized steel that it is required to collect under section 22 of this rule (special monitoring for corrosivity characteristics) when conducting a materials evaluation. When an evaluation of the information collected under section 22(d) of this rule is insufficient to locate the requisite number of lead and copper sampling sites that meet the targeting criteria in subdivisions (3) through (7), the water system shall review the sources of information listed in clauses (A) through (C) in order to identify a sufficient number of sampling sites. In addition, the system shall seek to collect such information, where possible, in the course of its normal operations, such as checking service line materials when reading water meters or performing maintenance activities:

(A) all plumbing codes, permits, and records in the files of the building department which indicate the plumbing materials that are installed within publicly or privately owned structures connected to the distribution system;

(B) all inspections and records of the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system; and

(C) all existing water quality information, which includes the results of all prior analyses of the system or individual structures connected to the system, indicating locations that may be particularly susceptible to high lead or copper concentrations.

(3) The sampling sites selected for a community water system's sampling pool (tier one (1) sampling sites) shall consist of:

(A) single family structures; or

(B) multiple family residences if such residences comprise at least twenty percent (20%) of the structures served by water systems that:

(i) contain:

(AA) copper pipes with lead solder installed after 1982; or

(BB) lead pipes;

(ii) are served by a lead service line; or

(iii) both items (i) and (ii) apply.

(4) Any community water system with insufficient tier one (1) sampling sites shall complete its sampling pool with tier two (2) sampling sites consisting of buildings, including multiple family residences that:

(A) contain:

(i) copper pipes with lead solder installed after 1982; or

(ii) lead pipes;

(B) are served by a lead service line; or

(C) both clauses (A) and (B) apply.

(5) Any community water system with insufficient tier one (1) and tier two (2) sampling sites shall complete its sampling pool with tier three (3) sampling sites consisting of single family structures that contain copper pipes with lead solder installed before 1983. A community water system with insufficient tier one (1), tier two (2), and tier three (3) sampling sites shall complete its sampling pool with representative sites throughout the distribution system. For the purposes of this subdivision, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

(6) The sampling sites selected for a nontransient noncommunity water system (tier one (1) sampling sites) shall consist of buildings that:

(A) contain:

(i) copper pipes with lead solder installed after 1982; or

(ii) lead pipes;

(B) are served by a lead service line; or

(C) both clauses (A) and (B) apply.

(7) A nontransient noncommunity water system with insufficient tier one (1) sites that meet the targeting criteria in subdivision (6) shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983. If additional sites are needed to complete the sampling pool, the nontransient noncommunity water system shall use representative sites throughout its distribution system. For the purpose of this subdivision, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

(8) Any water system whose distribution system contains lead service lines shall draw fifty percent (50%) of the samples it collects during each monitoring period from sites that contain lead pipes, or copper pipes with lead solder, and fifty percent (50%) of the samples from sites served by a lead service line. A water system that cannot identify a sufficient number of sampling sites served by a lead service line shall collect first draw samples from all of the sites identified as being served by such lines.

(b) The following are requirements for sample collection methods:

(1) All tap samples for lead and copper collected in accordance with this subsection, with the exception of lead service line samples collected under section 43(c) of this rule and samples collected under subdivision (5), shall be first draw samples.

(2) Each first draw tap sample for lead and copper shall be one (1) liter in volume and have stood motionless in the plumbing system of each sampling site for at least six (6) hours. First draw samples from residential housing shall be collected from the cold water kitchen tap or bathroom sink tap. First draw samples from a nonresidential building shall be one (1) liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. Nonfirst draw samples collected in lieu of first draw samples pursuant to subdivision (5) shall be one (1) liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. First draw samples may be collected by the system or the system may allow residents to collect first draw samples after instructing the residents of the sampling procedures specified in this subdivision. To avoid problems of residents handling nitric acid, acidification of first draw samples may be done up to fourteen (14) days after the sample is collected. After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the EPA-approved method before the sample can be analyzed. If a system allows residents to perform sampling, the system may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

(3) Each service line sample shall be one (1) liter in volume and have stood motionless in the lead service line for at least six (6) hours. Lead service line samples shall be collected in one (1) of the following three (3) ways:

(A) At the tap after flushing the volume of water between the tap and the lead service line. The volume of water shall be calculated based on the interior diameter and length of the pipe between the tap and the lead service line.

(B) Tapping directly into the lead service line.

(C) If the sampling site is a building constructed as a single family residence, allowing the water to run until there is a significant change in temperature that would be indicative of water that has been standing in the lead service line.

(4) A water system shall collect each first draw tap sample from the same sampling site from which it collected a previous sample. If, for any reason, the water system cannot gain entry to a sampling site in order to collect a follow-up tap sample, the system may collect the follow-up tap sample from another sampling site in its sampling pool as long as the new site meets the same targeting criteria and is within reasonable proximity of the original site.

(5) A nontransient noncommunity water system, or a community water system meeting the criteria of section 44(c)(7)(A) and 44(c)(7)(B) of this rule, that does not have enough taps that can supply first draw samples, as defined in section 1 of this rule, may apply to the commissioner in writing to substitute nonfirst draw samples. Such systems must collect as many first draw samples from appropriate taps as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites. The commissioner has the discretion to waive the requirement for prior approval of nonfirst draw sample sites selected by the system by written notification to the system.

(c) Water systems shall collect at least one (1) sample during each monitoring period specified in subsection (d) from the number of sites listed in the second column of the table in this subsection (standard monitoring). A system conducting reduced monitoring under subsection (d)(4) shall collect at least one (1) sample from the number of sites specified in the third column of the table in this subsection during each monitoring period specified in subsection (d)(4). Such reduced monitoring sites shall be representative of the sites required for standard monitoring. The commissioner may specify sampling locations when a system is conducting reduced monitoring.

System Size (Number of People Served)	Number of Sites (Standard Monitoring)	Number of Sites (Reduced Monitoring)
> 100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
<101	5	5

(d) The following are requirements for the timing of monitoring:

(1) For initial tap sampling, the first six (6) month monitoring period for small, medium size, and large systems shall begin on the following dates:

System Size (Number of People Served)	First Six Month Monitoring Period Begins On
> 50,000	January 1, 1992
3,301 to 50,000	July 1, 1992
< 3,301	July 1, 1993

The monitoring requirements are as follows:

(A) All large systems shall monitor during two (2) consecutive six (6) month periods.

(B) All small and medium size systems shall monitor during each six (6) month monitoring period until:

(i) the system exceeds the lead or copper action level and is therefore required to implement the corrosion control treatment requirements under section 40 of this rule, in which case the system shall continue monitoring in accordance with subdivision (2); or

(ii) the system meets the lead and copper action levels during two (2) consecutive six (6) month monitoring periods in which case the system may reduce monitoring in accordance with subdivision (4).

(2) Tap water monitoring requirements for lead and copper after corrosion control and source water treatment are as follows:

(A) Any large system that installs optimal corrosion control treatment under STEP FOUR of section 40(d) of this rule shall monitor during two (2) consecutive six (6) month monitoring periods by the date specified in STEP FIVE of section 40(d) of this rule.

(B) Any small or medium size system that installs optimal corrosion control treatment under STEP FIVE of section 40(e) of this rule shall monitor during two (2) consecutive six (6) month monitoring periods by the date specified in STEP SIX of section 40(e) of this rule.

(C) Any system that installs source water treatment under STEP THREE of section 42(a) of this rule shall monitor during two (2) consecutive six (6) month monitoring periods by the date specified in STEP FOUR of section 42(a) of this rule.

(3) After the commissioner specifies the values for water quality control parameters under section 41(f) of this rule, the system shall monitor during each subsequent six (6) month monitoring period, with the first monitoring period to begin on the date the commissioner specifies optimal values under section 41(f) of this rule.

(4) Reduced monitoring requirements shall be as follows:

(A) A small or medium size water system that meets the lead and copper action levels during each of two (2) consecutive six (6) month monitoring periods may reduce the number of samples in accordance with subsection (c), and reduce the frequency of sampling to once per year.

(B) Any water system that maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the commissioner under section 41(f) of this rule during each of two (2) consecutive six (6) month monitoring periods may reduce the frequency of monitoring to once per year and reduce the number of lead and copper samples in accordance with subsection (c) if it receives written approval from the commissioner. The commissioner shall:

(i) review monitoring, treatment, and other relevant information submitted by the water system in accordance with section 46 of this rule;

(ii) notify the system in writing when the commissioner determines the system is eligible to commence reduced monitoring; and

(iii) review and, where appropriate, revise the commissioner's determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

(C) A small or medium size water system that meets the lead and copper action levels during three (3) consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three (3) years. Any water system that maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the commissioner under section 41(f) of this rule during three (3) con-

secutive years of monitoring may reduce the frequency of monitoring from annually to once every three (3) years if it receives written approval from the commissioner. The commissioner shall:

(i) review monitoring, treatment, and other relevant information submitted by the water system in accordance with section 46 of this rule;

(ii) notify the system in writing when the commissioner determines the system is eligible to reduce the frequency of monitoring to once every three (3) years;

(iii) review and, where appropriate, revise the determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

(D) A water system that reduces the number and frequency of sampling shall collect these samples from representative sites included in the pool of targeted sampling sites identified in subsection (a). Systems sampling annually or less frequently shall conduct the lead and copper tap sampling during the months of June, July, August, or September unless the commissioner has approved a different sampling period in accordance with the following:

(i) At the commissioner's discretion, a different period for conducting the lead and copper tap sampling may be approved for systems conducting a reduced number of samples. Such a period shall be no longer than four (4) months and must represent a time of normal operation where the highest levels of lead are most likely to occur. The commissioner shall designate a period that represents a time of normal operation for the system as follows:

(AA) For a nontransient noncommunity water system that does not operate during the months of June through September.

(BB) Where the period of normal operation having the highest levels of lead that are most likely to occur is not known.

(ii) Systems monitoring annually that have been collecting samples during the months of June through September and have received approval from the commissioner to alter their sample collection period pursuant to subsection (a) shall collect their next round of samples during a period that ends no later than twenty-one (21) months after the previous round of sampling.

(iii) Systems monitoring triennially that have been collecting samples during the months of June through September and have received approval from the commissioner to alter their sample collection period pursuant to subsection (a) shall collect their next round of samples during a time period that ends no more than forty-five (45) months after the previous round of sampling. Subsequent rounds of sampling shall be collected annually or triennially as required by this section.

(iv) Small systems with waivers granted pursuant to subsection (g) that have been collecting samples during the months of June through September and have received approval from the commissioner to alter their sample collection period under item (i) must collect their next round of samples before the end of the nine (9) year period.

(E) A water system that demonstrates for two (2) consecutive six (6) month monitoring periods that the tap water lead level computed under section 36(c)(3) of this rule is less than or equal to five-thousandths (0.005) milligram per liter (mg/l) and the tap water copper level computed under section 36(c)(3) of this rule is less than or equal to sixty-five hundredths (0.65) mg/l may reduce the number of samples in accordance with subsection (c) and reduce the frequency of sampling to once every three (3) calendar years.

(F) The following apply when a small or medium size water system subject to reduced monitoring exceeds the lead or copper action level:

(i) A small or medium size water system subject to reduced monitoring that exceeds the lead or copper action level shall resume sampling in accordance with subdivision (3) and collect the number of samples specified for standard monitoring under subsection (c). Such system shall also conduct water quality parameter monitoring in accordance with section 38(c), 38(d), or 38(e) of this rule, as appropriate, during the monitoring period in which it exceeds the action level. Any water system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in subsection (c) after it has completed two (2) subsequent consecutive six (6) month rounds of monitoring that meet the criteria of clause (A) or may resume triennial monitoring for lead and copper at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either clause (C) or (E).

(ii) A water system subject to the reduced monitoring frequency that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the commissioner under section 41(f) of this rule for more than nine (9) days in any six (6) month period specified in section 38(d) of this rule shall conduct tap water sampling for lead and copper at the frequency specified in subdivision (3), collect the number of samples specified for standard monitoring under subsection (c), and shall resume monitoring for water quality parameters in accordance with section 38(d) of this rule. Such a system may resume reduced monitoring for lead and copper at the tap and water quality parameters within the distribution system under the following conditions:

(AA) The system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in subsection (c) after it has completed two (2) subsequent six (6) month rounds of monitoring that meets the criteria of clause (B) and the system has received written approval from the commissioner that it is appropriate to resume reduced monitoring on an annual frequency.

(BB) The system may resume triennial monitoring for lead and copper at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either clause (C) or (E) and the system has received written approval from the commissioner that it is appropriate to resume triennial monitoring.

(CC) The system may reduce the number of water quality parameter tap water samples required in accordance with section 38(f)(1) of this rule and the frequency with which it collects such samples in accordance with section 38(f)(2) of this rule. Such a system may not resume triennial monitoring for water quality parameters at the tap until it demonstrates, in accordance with the requirements of section 38(f)(2) of this rule, that it has requalified for triennial monitoring.

(G) A water system subject to a reduced monitoring frequency under this subdivision that either adds a new source of water or changes any water treatment shall inform the commissioner in writing in accordance with section 46(a)(3) of this rule. The commissioner may require the system to resume sampling in accordance with subdivision (3) and collect the number of samples specified for standard monitoring under subsection (c) or take other appropriate steps such as increased water quality parameter monitoring or reevaluation of its corrosion control treatment given the potentially different water quality considerations.

(e) The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system and the commissioner in making any determinations (i.e., calculating the ninetieth percentile lead or copper level) under section 36 of this rule, this section, and sections 38 through 47 of this rule.

(f) A sample invalidated under this subsection does not count toward determining lead or copper ninetieth percentile levels under section 36(c)(3) of this rule or toward meeting the minimum monitoring requirements of subsection (c). The following criteria specify invalidation of samples:

(1) The commissioner may invalidate a lead or copper tap water sample if at least one (1) of the following conditions is met:

(A) The laboratory establishes that improper sample analysis caused erroneous results.

(B) The commissioner determines that the sample was taken from a site that did not meet the site selection criteria of this section.

(C) The sample container was damaged in transit.

(D) There is substantial reason to believe that the sample was subject to tampering.

(2) The system must report the results of all samples to the commissioner and all supporting documentation for samples the system believes should be invalidated.

(3) To invalidate a sample under subdivision (1), the decision and the rationale for the decision must be documented in writing. The commissioner may not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than the original sample.

(4) The water system must collect replacement samples for any samples invalidated under this section if, after the invalidation of one (1) or more samples the system has too few samples to meet the minimum requirements of subsection (c). Any such replacement samples must be taken as soon as possible, but no later than twenty (20) days after the date the commissioner invalidates the sample or by the end of the applicable monitoring period, whichever occurs later. Replacement samples taken after the end of the applicable monitoring period shall not also be used to meet the monitoring requirements of a subsequent monitoring period. The replacement samples shall be taken at the same locations as the invalidated samples or, if that is not possible, at locations other than those already used for sampling during the monitoring period.

(g) A small system that meets the criteria of this subsection may apply to the commissioner to reduce the frequency of monitoring for lead and copper under this section to once every nine (9) years for a full waiver if it meets all of the materials criteria specified in subdivision (1) and all of the monitoring criteria specified in subdivision (2). A small system that meets the criteria of subdivisions (1) and (2) only for lead or only for copper may apply to the commissioner for a partial waiver that may reduce the frequency of tap water monitoring for that contaminant only. The following are the criteria for lead and copper waivers:

(1) The system must demonstrate that the distribution system, service lines, and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing or copper-containing materials or both, according to the following:

(A) To qualify for a lead waiver, either a full waiver or a waiver of the tap water monitoring requirements, the water system must provide certification and supporting documentation to the commissioner that the system is free of all lead-containing materials as demonstrated by the following:

(i) There are no plastic pipes or plastic service lines that contain lead plasticizers.

(ii) The system is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fitting and fixtures unless such fittings and fixtures meet the specifications of any standard established pursuant to the Safe Drinking Water Act at 42 U.S.C. 300g-6(e).

(B) To qualify for copper waiver, either a full waiver or a waiver of the tap water monitoring requirements, the water system must provide certification and supporting documentation to the commissioner that the system contains no copper pipes or copper service lines.

(2) The system must have completed at least one (1) six (6) month round of standard tap water monitoring for lead and copper at sites approved by the commissioner and from the number of sites required by subsection (c) and demonstrate that the ninetieth percentile levels for any and all rounds of monitoring conducted since the system became free of all lead-containing or copper-containing materials or both, as appropriate, meet the following criteria:

(A) To qualify for a full waiver or a lead waiver, the system must demonstrate that the ninetieth percentile lead level does not exceed five-thousandths (0.005) mg/l.

(B) To qualify for a full waiver or a copper waiver, the system must demonstrate that the ninetieth percentile for copper does not exceed sixty-five hundredths (0.65) mg/l.

(3) The commissioner shall notify the system of its waiver determination, in writing, setting forth the basis of its decision and any condition of the waiver. The small system must continue monitoring for lead and copper at the tap as required by subsection (d), as appropriate, until it receives written notification from the commissioner that the waiver has been approved. As a condition of the waiver, the commissioner may require the system to perform specific activities to avoid the risk of lead or copper concentration of concern in tap water, including the following:

(A) Limited monitoring.

(B) Periodic outreach to customers to remind them to avoid installation of materials that might void the waiver.

(4) The monitoring requirements for systems with a full waiver, a lead waiver, or a copper waiver are as follows:

(A) A system with a full waiver shall conduct tap water monitoring for lead and copper in accordance with subsection (d)(4)(D) at the reduced number of sampling sites specified in subsection (c) at least once every nine (9) years and provide the materials certification specified in subdivision (1) for both contaminants along with the monitoring results.

(B) A system with a partial waiver shall conduct tap water monitoring for the waived contaminant in accordance with subsection (d)(4)(D) at the reduced number of sampling sites specified in subsection (c) at least once every nine (9) years and provide the materials certification specified in subdivision (1) pertaining to the waived contaminant along with the monitoring results. Such a system must also continue to monitor for the nonwaived contaminant in accordance with the requirements of subsection (d), as appropriate.

(C) If a system with a full or partial waiver adds a new source of water or changes any water treatment, the system must notify the commissioner in writing in accordance with section 46(a)(3) *[of this rule]*. The commissioner has the authority to require the system to add or modify waiver conditions, if it deems such modifications are necessary to address treatment or source water changes at the system. Conditions may include the following:

(i) Requiring recertification that the system is free of lead-containing or copper-containing materials, or both.

(ii) Requiring an additional round or rounds of monitoring.

(D) If a system with a full or partial waiver becomes aware that it is no longer free of lead-containing or copper-containing materials, or both, as appropriate, as a result of new construction or repairs, the system shall notify the commissioner in writing no later than sixty (60) days after becoming aware of such a change.

(5) If a system continues to satisfy the requirements of subdivision (4), the waiver will be renewed automatically unless any of the conditions listed in this section occurs. A system whose waiver has been revoked may reapply for a waiver at such time as it again meets the appropriate materials and monitoring criteria of subdivisions (1) and (2). The waiver may be revoked if any of the following conditions occur:

(A) A system with a full waiver or a lead wavier no longer satisfies the materials criteria of subdivision (1)(A) or has a ninetieth percentile lead level greater than five-thousandths (0.005) mg/l.

(B) A system with a full waiver or a copper waiver no longer satisfies the materials criteria of subdivision (1)(B) or has a ninetieth percentile copper level greater than sixty-five hundredths (0.65) mg/l.

(C) The commissioner notifies the system, in writing, that the waiver has been revoked, setting forth the basis of its decision.

(6) A system whose full or partial waiver has been revoked by the commissioner is subject to the corrosion control treatment and lead and copper tap water monitoring requirements as follows:

(A) If the system exceeds the lead or copper action level, the system must implement corrosion control treatment in accordance with the deadlines specified in section 40(e) of this rule and any other applicable requirements of section 36 of this rule, this section, and sections 38 through 47 of this rule.

(B) If the system meets both the lead and copper action level, the system must monitor for lead and copper at the tap no less frequently than once every three (3) years using the reduced number of sample sites specified in subsection (c).

[As amended at: 25 IR 764.]

327 IAC 8-2-38 ------ Drinking water standards: monitoring requirements for water quality parameters

(a) All large water systems and all small and medium size water systems that exceed the lead or copper action level shall monitor water quality parameters in addition to lead and copper in accordance with this section. The requirements of this section are summarized in the table in subsection (b)(2)(A).

(b) General monitoring requirements for water quality parameters shall be as follows:

(1) Requirements for sample collection methods shall be as follows:

(A) Tap samples shall be representative of water quality throughout the distribution system taking into account:

(i) the number of persons served;

(ii) the different sources of water;

(iii) the different treatment methods employed by the system; and

(iv) seasonal variability.

Tap sampling under this section is not required to be conducted at taps targeted for lead and copper sampling under section 37(a) of this rule. (Note: Systems may find it convenient to conduct tap sampling for water quality parameters at sites used for coliform sampling under section 8 of this rule.)

(B) Except as provided in subsection (d)(3), a system shall collect two (2) samples for each applicable water quality parameter at each entry point to the distribution system during each monitoring period specified in subsection (c). Samples

collected at the entry point to the distribution system shall be from locations representative of each source after treatment. If a system draws water from more than one (1) source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions, that is, when water used is representative of all sources being used.

(2) Requirements for the number of samples shall be as follows:

(A) Systems shall collect two (2) tap samples for applicable water quality parameters during each monitoring period specified under subsections (c) through (f) from the number of sites listed in the following table:

System Size (Number of People Served)	Number of Sites for Water Quality Parameters
> 100,000	25
10,001 to 100,000	10
3,301 to 10,000	3

(B) Systems shall collect two (2) samples for each applicable water quality parameter at each entry point to the distribution system during each monitoring period specified in subsection (c). During each monitoring period specified in subsections (d) through (f), systems shall collect one (1) sample for each applicable water quality parameter at each entry point to the distribution system.

(c) This subsection governs initial sampling. All large water systems shall measure the applicable water quality parameters as specified in subdivision (1) at taps and at each entry point to the distribution system during each six (6) month monitoring period specified in section 37(d)(1) of this rule. All small and medium size systems shall measure the applicable water quality parameters at the locations specified in subdivision (1) during each six (6) month monitoring period specified in section 37(d)(1) of this rule during which the system exceeds the lead or copper action level. The following are water quality parameters:

(1) Monitoring requirements for water quality parameters at taps are as follows:

(A) pH.

(B) Alkalinity.

(C) Orthophosphate, when an inhibitor containing a phosphate compound is used.

(D) Silica, when an inhibitor containing a silica compound is used.

(E) Calcium.

(F) Conductivity.

(G) Water temperature.

(2) At each entry point to the distribution system, all of the applicable parameters listed in subdivision (1).

(d) This subsection governs monitoring after installation of corrosion control. Any large system which installs corrosion control treatment under section 40(d)(4) of this rule shall measure the water quality parameters at the locations and frequencies specified in this subsection during each six (6) month monitoring period specified in section 37(d)(2)(A) of this rule. Any small or medium size system which installs corrosion control treatment shall conduct monitoring during each six (6) month monitoring period specified in section 37(d)(2)(B) of this rule in which the system exceeds the lead or copper action level. The following are water quality parameters:

(1) Monitoring requirements for water quality parameters at taps are two (2) samples for:

(A) pH;

(B) alkalinity;

(C) orthophosphate, when an inhibitor containing a phosphate compound is used;

(D) silica, when an inhibitor containing a silicate compound is used; and

(E) calcium, when calcium carbonate stabilization is used as part of corrosion control.

(2) Except as provided in subdivision (3), at each entry point to the distribution system are one (1) sample no less frequently than every two (2) weeks (biweekly) for:

(A) pH;

(B) when alkalinity is adjusted as part of optimal corrosion control, a reading of the dosage rate of the chemical used to adjust alkalinity and the alkalinity concentration; and

(C) when a corrosion inhibitor is used as part of optimal corrosion control, a reading of the dosage rate of the inhibitor used and the concentration of the orthophosphate or silica (whichever is applicable).

(3) A ground water system can limit entry point sampling described in subdivision (2) to those entry points that are representative of water quality and treatment conditions throughout the system. If water from untreated ground water sources mixes with water from treated ground water sources, the system must monitor for water quality parameters both at representative entry points receiving treatment and representative entry points receiving no treatment. Prior to the start of any monitoring under this subdivision, the system shall provide to the commissioner written information identifying the selected entry points and documentation, including information on seasonal variability, sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

(e) This subsection governs monitoring after water quality parameter values for optimal corrosion control are specified. After the commissioner specifies the values for applicable water quality control parameters reflecting optimal corrosion control treatment under section 41(f) of this rule, all large water systems shall measure the applicable water quality parameters in accordance with subsection (d) and determine compliance with the requirements of section 42(g) of this rule every six (6) months with the first six (6) month period to begin on the date the commissioner specifies the optimal values under section 41(f) of this rule. Any small or medium size system shall conduct such monitoring during each six (6) month period in which the system exceeds the lead or copper action level. For any such small and medium size water system that is subject to a reduced monitoring frequency pursuant to section 37(d)(4) of this rule at the time of the action level exceedence, the end of the applicable six (6) month period shall coincide with the end of the applicable monitoring period under section 37(d)(4) of this rule. Compliance with commissioner-designated optimal water quality parameter values shall be determined as specified under section 41(g) of this rule.

(f) The following are requirements for reduced monitoring:

(1) Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment during each of two (2) consecutive six (6) month monitoring periods under subsection (e) shall continue monitoring at the entry point to the distribution system as specified in subsection (d)(2). Such system may collect two (2) tap samples for applicable water quality parameters from the reduced number of sites shown in the following table during each six (6) month monitoring period:

System Size (Number of People Served)	Reduced Number of Sites of Water Quality Parameters
> 100,000	10
10,001 to 100,000	7
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
< 101	1

(2) This section designates reduced monitoring requirements for water quality parameters as follows:

(A) Any water system that maintains the range of values for water quality parameters reflecting optimal corrosion control treatment specified by the commissioner under section 41(f) of this rule during three (3) consecutive years of monitoring may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in subdivision (1) from once every six (6) months to annually. Any water system that maintains the range of water quality parameters reflecting optimal corrosion control treatment specified by the commissioner under section 41(f) of this rule during three (3) consecutive years of annual monitoring under this subdivision may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in subdivision (1) from annually to once every three (3) years.

(B) A water system may reduce the frequency of collecting tap samples to every three (3) years for applicable water quality parameters specified in subdivision (1) if the system demonstrates the following during two (2) consecutive monitoring periods:

(i) The systems tap water lead level at the ninetieth percentile is less than or equal to the PQL for lead as specified in section 45(b)(2) of this rule.

(ii) The systems tap water copper level at the ninetieth percentile is less than or equal to sixty-five hundredths (0.65) milligram per liter (mg/l) for copper as specified in section 36(c)(2) of this rule.

(iii) The system has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the commissioner under section 41(f) of this rule.

(3) A water system that conducts sampling annually shall collect these samples evenly throughout the year so as to reflect seasonal variability.

(4) Any water system subject to the reduced monitoring frequency that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the commissioner under section 41(f) of this rule for more than nine (9) days in any six (6) month monitoring period shall resume distribution tap water sampling in accordance with the number and frequency requirements in subsection (e). Such a system may resume annual monitoring for water quality parameters number of sites specified in subdivision (2) after it has completed two (2) subsequent consecutive six (6) month rounds of monitoring that meet the criteria of that subsection or may resume triennial monitoring for water quality parameters at the tap at the reduced number of sites after it demonstrates that it meets the criteria of either subdivision (2)(A) or (2)(B).

(g) The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system and the commissioner in making any determinations, that is, determining concentrations of water quality parameters under this section or section 41 of this rule.

[As amended at: 25 IR 770.]

327 IAC 8-2-39 ------ Drinking water standards: monitoring requirements for lead and copper in source water

(a) Requirements for sample location, collection methods, and number of samples shall be as follows:

(1) A water system that fails to meet the lead or copper action level on the basis of tap samples collected in accordance with section 37 of this rule shall collect lead and copper source water samples in accordance with the following requirements regarding sample location, number of samples, and collection methods:

(A) Ground water systems shall take a minimum of one (1) sample at every entry

point to the distribution system which is representative of each well after treatment hereafter called a sampling point. The system shall take one (1) sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(B) Surface water systems, or systems with a combination of ground and surface water sources, shall take a minimum of one (1) sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment hereafter called a sampling point. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(C) If a system draws water from more than one (1) source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions when water representative of all sources is being used.

(D) The commissioner may reduce the total number of samples that must be analyzed by allowing the use of compositing. Compositing of samples must be done by certified laboratory personnel. Composite samples from a maximum of five (5) samples are allowed, provided that if the lead concentration in the composite sample is greater than one-thousandth (0.001) milligram/liter (mg/l) or the copper concentration is greater than one hundred sixty-thousandths (0.160) mg/l, then either of the following shall be done:

(i) A follow-up sample shall be taken and analyzed within fourteen (14) days at each sampling point used in the composite.

(ii) If duplicates of or sufficient quantities from the original samples from each sampling point used in the composite are available, the system may use these instead of resampling.

(2) Where the results of sampling indicate the maximum permissible source water levels established under section 42(b)(4) of this rule have been exceeded, the commissioner may require that one (1) additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two (2) weeks) at the same sampling point. If a confirmation sample required by the commissioner is taken for lead or copper, then the results of the initial and confirmation sample shall be averaged in determining compliance with the maximum permissible levels specified by the commissioner. Any sample value below the detection limit shall be considered to be zero (0). Any value above the detection limit but below the practical quantitation level shall either be considered as the measured value or be considered one-half (1/2) the practical quantitation level.

(b) Any system that exceeds the lead or copper action level at the tap shall collect one (1) source water sample from each entry point to the distribution system within six (6) months after the action level has been exceeded.

(c) Any system which installs source water treatment under STEP THREE of section 42(a) of this rule shall collect an additional source water sample from each entry point to the distribution system during two (2) consecutive six (6) month monitoring periods by the deadline specified in STEP FOUR of section 42(a) of this rule.

(d) Requirements for monitoring frequency after the commissioner specifies maximum permissible source water levels or determines that source water treatment is not needed shall be as follows:

(1) A system shall monitor at the frequency specified as follows in cases where the commissioner specifies maximum permissible source water levels under STEP FOUR of section 42(b) of this rule or determines that the system is not required to install source water treatment under STEP TWO of section 42(b) of this rule:

(A) A water system using only ground water shall collect samples once during the three (3) year compliance period (as that term is defined in section 1(10) of this rule) in effect when the applicable determination under this subdivision is

made by the commissioner. Such systems shall collect samples once during each subsequent compliance period.

(B) A water system using surface water (or a combination of surface and ground water) shall collect samples once during each year, the first annual monitoring period to begin on the date on which the applicable determination is made under this subdivision.

(2) A system is not required to conduct source water sampling for lead or copper, or both, if the system meets the action level for the specific contaminant in tap water samples during the entire source water sampling period applicable to the system under subdivision (1).

(e) Requirements for reduced monitoring frequency shall be as follows:

(1) A water system using only ground water may reduce the monitoring frequency for lead and copper to once during each nine (9) year compliance cycle (as that term is defined in section 1(9) of this rule) if the system meets one (1) of the following criteria:

(A) The system demonstrates that the finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the commissioner in section 42(b)(4) of this rule during at least three (3) consecutive compliance periods under subsection (d)(1).

(B) The commissioner has determined that source water treatment is not needed and the system demonstrates that, during at least three (3) consecutive compliance periods in which sampling was conducted under subsection (d)(1), the concentration of lead in source water was less than or equal to five-thousandths (0.005) mg/l and the concentration of copper in source water was less than or equal to sixty-five hundredths (0.65) mg/l.

(2) A water system using surface water (or a combination of surface water and ground water) may reduce the monitoring frequency in subsection (d)(1) to once during each nine (9) year compliance cycle (as that term is defined in section 1(9) of this rule) if the system meets one (1) of the following criteria:

(A) The system demonstrates that the finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the commissioner in section 42(b)(4) of this rule for at least three (3) consecutive years.

(B) The commissioner has determined that source water treatment is not needed and the system demonstrates that, during at least three (3) consecutive years, the concentration of lead in source water was less than or equal to five- thousandths (0.005) mg/l and the concentration of copper in source water was less than or equal to sixty-five hundredths (0.65) mg/l.

(3) A water system that uses a new source of water is not eligible for reduced monitoring for lead or copper, or both, until concentrations in samples collected from the new source during three (3) consecutive monitoring periods are below the maximum permissible lead and copper concentrations specified by the commissioner in STEP FIVE of section 42(a) of this rule.

[As amended at: 25 IR 272.]

327 IAC 8-2-40 ------ Drinking water standards: applicability of corrosion control treatment steps to small, medium, and large size water systems

(a) Systems shall complete the applicable corrosion control treatment requirements described in section 41 of this rule by the deadlines established as follows:

(1) A large system (serving more than fifty thousand (50,000) persons) shall complete the corrosion control treatment steps specified in subsection (d) unless it is deemed to have optimized corrosion control under subsection (b)(2) or (b)(3).

(2) A small system (serving less than or equal to three thousand three hundred (3,300) persons) and a medium size system (serving more than three thousand three hundred (3,300) and less than or equal to fifty thousand (50,000) persons) shall complete the corrosion control treatment steps specified in subsection (e), unless it is deemed to have optimized corrosion control under subsection (b)(1), (b)(2), or (b)(3).

(b) A system is deemed to have optimized corrosion control and is not required to complete the applicable corrosion control treatment steps identified in this section if the system satisfies one (1) of the criteria in this subdivision. Any such system deemed to have optimized corrosion control and having treatment in place shall continue to operate and maintain optimal corrosion control treatment and meet any requirements that the commissioner determines appropriate to ensure optimal corrosion control treatment is maintained as follows:

(1) A small or medium size water system is deemed to have optimized corrosion control if the system meets the lead and copper action levels during each of two (2) consecutive six (6) month monitoring periods conducted in accordance with section 37 of this rule.

(2) Any water system may be deemed by the commissioner to have optimized corrosion control treatment if the system demonstrates to the satisfaction of the commissioner that it has conducted activities equivalent to the corrosion control steps applicable to such system under this section. If the commissioner makes this determination, the commissioner shall provide the system with a written notice explaining the basis for the decision and shall specify water quality control parameters representing optimal corrosion control in accordance with section 41(f) of this rule. A water system deemed to have optimized corrosion control shall operate in compliance with commissioner-designated water quality control parameters in accordance with section 41(g) of this rule and continue to conduct lead and copper tap and water quality parameter sampling in accordance with section 37 of this rule. A system shall provide the following information to the commissioner in order to support a determination under this subsection:

(A) The results of all test samples collected for each of the water quality parameters in section 41(c)(3) of this rule.

(B) A report explaining the test methods used by the water system to evaluate the corrosion control treatments listed in section 42(c)(1) of this rule, the results of all tests conducted, and the basis for the system's selection of optimal corrosion control treatment.

(C) A report explaining how corrosion control has been installed and how it is being maintained to ensure minimal lead and copper concentrations at consumers' taps.

(D) The results of tap water samples collected in accordance with section 37 of this rule at least once every six (6) months for one (1) year after corrosion control has been installed.

(3) Any water system is deemed to have optimized corrosion control if it submits results of tap water monitoring in accordance with section 37 of this rule and source water monitoring conducted in accordance with section 39 of this rule that demonstrates for two (2) consecutive six (6) month periods that the difference between the ninetieth percentile tap water lead level computed under section 36(c)(3) of this rule and the highest source water lead concentration is less than the practical quantitation level for lead specified in section 45(a)(1)(B) of this rule. Criteria for optimal corrosion control are as follows:

(A) A water system whose highest source water lead level is below the method detection limit may also be deemed to have optimized corrosion control if the ninetieth percentile tap water lead level is less than or equal to the practical quantitation level for lead for two (2) consecutive six (6) month monitoring periods.

(B) A water system deemed to have optimized corrosion control shall continue monitoring for lead and copper at the tap no less frequently than once every three (3) calendar years using the reduced number of sites specified in section 37(c) of this rule and collecting the samples at times and locations specified in section 37(d)(4)(D) of this rule.

(C) A water system deemed to have optimized corrosion control shall notify the commissioner in writing pursuant to section 46(c) of this rule of any change in treatment or the addition of a new source. The commissioner may require any such system to conduct additional monitoring or to take other action the commissioner deems appropriate to ensure that such systems maintain minimal levels of corrosion in the distribution system.

(D) On or after July 12, 2001, a system that is deemed not to have optimized corrosion control shall implement corrosion control treatment pursuant to this section unless it meets the copper action level.

(E) Any system triggered into corrosion control because it is no longer deemed to have optimized corrosion control shall implement corrosion control treatment in accordance with the deadlines in subsection (e). Any such large system shall adhere to the schedule specified for medium size systems with the time periods for completing each step being triggered by the date the system is no longer deemed to have optimized corrosion control.

(c) Any small or medium size system that is required to complete the corrosion control steps due to its exceeding the lead or copper action level may cease completing the treatment steps whenever the system meets both action levels during each of two (2) consecutive monitoring periods conducted under section 37 of this rule and submits the results to the commissioner. If any such water system thereafter exceeds the lead or copper action level during any monitoring period, the system (or the commissioner, as the case may be) shall recommence completion of the applicable treatment steps, beginning with the first treatment step which was not previously completed in its entirety. The commissioner may require a system to repeat treatment steps previously completed by the system where it has been determined by the commissioner that this is necessary to implement properly the treatment requirements of this section. The commissioner shall notify the system in writing of such a determination and explain the basis for the decision. The requirement for any small or medium size water system to implement corrosion control treatment steps in accordance with subsection (e) (including systems deemed to have optimized corrosion control under subsection (b)(1)) is triggered whenever any small or medium size water system exceeds the lead or copper action level.

(d) Except as provided in subsection (b)(2) and (b)(3), large systems shall complete the following corrosion control treatment steps (described in the referenced portions of sections 37, 38, and 41 of this rule) by the indicated dates:

STEP ONE: The system shall conduct initial monitoring (as required by sections 37(d)(1) and 38(c) of this rule) during two (2) consecutive six (6) month monitoring periods by January 1, 1993.

STEP TWO: The system shall complete corrosion control studies (as required by section 41(c) of this rule) by July 1, 1994.

STEP THREE: The commissioner shall designate optimal corrosion control treatment (as required by section 41(d) of this rule) by January 1, 1995.

STEP FOUR: The system shall install optimal corrosion control treatment (as required by section 41(e) of this rule) by January 1, 1997.

STEP FIVE: The system shall complete follow-up sampling (as required by sections 37(e) and 38(d) of this rule) by January 1, 1998.

STEP SIX: The commissioner shall review installation of treatment and designate optimal water quality control parameters (as required by section 41(f) of this rule) by July 1, 1998.

STEP SEVEN: The system shall operate in compliance with the optimal water quality

control parameters specified by the commissioner (as required by section 41(g) of this rule) and continue to conduct tap sampling (as required by sections 37(d)(3) and 38(e) of this rule).

(e) Except as provided in subsection (b), small and medium size systems shall complete the following corrosion control treatment steps by the indicated time periods:

STEP ONE: The system shall conduct initial tap sampling until the system either exceeds the lead and copper action level or becomes eligible for reduced monitoring under section 37(d)(4) of this rule. A system exceeding the lead or copper action level shall recommend optimal corrosion control treatment within six (6) months after it exceeds one (1) of the action levels.

STEP TWO: Within twelve (12) months after a system exceeds the lead or copper action level, the commissioner may require the system to perform corrosion control studies. If the commissioner does not require the system to perform such studies, optimal corrosion control treatment shall be specified by the commissioner within the following time frames:

(A) For medium size systems, within eighteen (18) months after such system exceeds the lead or copper action level.

(B) For small systems, within twenty-four (24) months after such system exceeds the lead or copper action level.

STEP THREE: If the commissioner requires a system to perform corrosion control studies under STEP TWO, the system shall complete the studies within eighteen (18) months after the commissioner requires that such studies be conducted.

STEP FOUR: If the system has performed corrosion control studies under STEP TWO, the commissioner shall designate optimal corrosion control treatment within six (6) months after completion of STEP THREE.

STEP FIVE: The system shall install optimal corrosion control treatment within twenty-four (24) months after the commissioner designates optimal corrosion control treatment.

STEP SIX: The system shall complete follow-up sampling within thirty-six (36) months after the commissioner designates optimal corrosion control treatment.

STEP SEVEN: The commissioner shall review the system's installation of treatment and designate optimal water quality control parameters within six (6) months after completion of STEP SIX.

STEP EIGHT: The system shall operate in compliance with the optimal water quality control parameters designated by the commissioner and continue to conduct tap sampling.

[As amended at: 25 IR 774.]

327 IAC 8-2-41 ------ Drinking water standards: corrosion control treatment

(a) Each system shall complete the corrosion control treatment requirements described in this section that are applicable to such system under section 40 of this rule. Based upon the results of lead and copper tap monitoring and water quality parameter monitoring, small and medium size water systems exceeding the lead or copper action level shall recommend installation of one (1) or more of the corrosion control treatments listed in subsection (c)(1) that the system believes constitutes optimal corrosion control for that system. The commissioner may require the system to conduct additional water quality parameter monitoring in accordance with section 38(c) of this rule to assist the commissioner in reviewing the system's recommendation.

(b) The commissioner may require any small or medium size system that exceeds the lead or copper action level to perform corrosion control studies under subsection (c) to identify optimal corrosion control treatment for the system.

(c) Requirements for the performance of corrosion control studies shall be as follows:

(1) Any public water system performing corrosion control studies shall evaluate the effectiveness of each of the following treatments, and, if appropriate, combina-

tions of the following treatments to identify the optimal corrosion control treatment for that system:

(A) Alkalinity and pH adjustment.

(B) Calcium hardness adjustment.

(C) The addition of a phosphate or silicate based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples.

(2) The water system shall evaluate each of the corrosion control treatments using either pipe rig/loop tests, metal coupon tests, partial-system tests, or analyses based on analogous treatments with other systems of similar size, water chemistry, and distribution system configuration.

(3) The water system shall measure the following water quality parameters in any tests conducted under subdivision (2) before and after evaluating the corrosion control treatments listed in subdivision (1):

(A) Lead.

(B) Copper.

(C) pH.

(D) Alkalinity.

(E) Calcium.

(F) Conductivity.

(G) Orthophosphate (when an inhibitor containing a phosphate compound is used).

(H) Silicate (when an inhibitor containing a silicate compound is used).

(I) Water temperature.

(4) The water system shall identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment and document such constraints with at least one (1) of the following:

(A) Data and documentation showing that a particular corrosion control treatment has adversely affected other water treatment processes when used by another water system with comparable water quality and characteristics.

(B) Data and documentation demonstrating that a water system has previously attempted to evaluate a particular corrosion control treatment and has found the treatment is ineffective or adversely affects other water quality treatment processes, or both.

(5) The water system shall evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes.

(6) On the basis of an analysis of the data generated during each evaluation, the water system shall recommend to the commissioner in writing the treatment option that the corrosion control studies indicate constitutes optimal corrosion control treatment for that system. The water system shall provide a rationale for its recommendation along with all supporting documentation specified in subdivisions (1) through (5).

(d) Requirements for the designation of optimal corrosion control treatment shall be as follows:

(1) Based upon consideration of available information including, where applicable, studies performed under subsection (c) and a system's recommended treatment alternative, the commissioner shall either approve the corrosion control treatment option recommended by the system or designate alternative corrosion control treatments from among those listed in subsection (c)(1). When designating optimal treatment, the commissioner shall consider the effects that additional corrosion control treatment will have on water quality parameters and on other water quality treatment processes.

(2) The commissioner shall notify the system of its decision on optimal corrosion

control treatment in writing and explain the basis for this determination. If the commissioner requests additional information to aid the review, the water system shall provide the information.

(e) Each system shall properly install and operate throughout its distribution system the optimal corrosion control treatment designated by the commissioner under subsection (d).

(f) The commissioner shall evaluate the results of all lead and copper tap samples and water quality parameter samples submitted by the water system and determine whether the system has properly installed and operated the optimal corrosion control treatment designated by the commissioner in subsection (d). Upon reviewing the results of tap water and water quality parameter monitoring by the system, both before and after the system installs optimal corrosion control treatment, the commissioner shall designate the following:

(1) A minimum value or range of values for pH measured at each entry point to the distribution system.

(2) A minimum pH value, measured in all tap samples. Such value shall be equal to or greater than seven (7.0) unless the commissioner determines that meeting a pH level of seven (7.0) is not technologically feasible or is not necessary for the system to optimize corrosion control.

(3) If a corrosion inhibitor is used, a minimum concentration or a range of concentrations for the inhibitor, measured at each entry point to the distribution system and in all tap samples, that the commissioner determines is necessary to form a passivating film on the interior walls of the pipes of the distribution system.

(4) If alkalinity is adjusted as part of optimal corrosion control treatment, a minimum concentration or a range of concentrations for alkalinity measured at each entry point to the distribution system and in all tap samples.

(5) If calcium carbonate stabilization is used as part of corrosion control, a minimum concentration or a range of concentrations for calcium measured in all tap samples.

The values for the applicable water quality control parameters listed in this subsection shall be those the commissioner determines to reflect optimal corrosion control treatment for the system. The commissioner may designate values for additional water quality control parameters determined by the commissioner to reflect optimal corrosion control for the system. The commissioner shall notify the system in writing of these determinations and explain the basis for the decisions.

(g) All systems optimizing corrosion control shall continue to operate and maintain optimal corrosion control treatment, including maintaining water quality parameter values at or above minimum values or within ranges designated by the commissioner under subsection (f) in all samples collected under section 38(d) through 38(f) of this rule. Compliance with the requirements shall be determined every six (6) months, as specified in section 38(d) of this rule. A water system is out of compliance with the requirements for a six (6) month period if it has excursions for any commissioner-specified parameter for more than nine (9) days during the period. An excursion occurs whenever the daily value for one (1) or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the commissioner. The commissioner may delete results of obvious sampling errors from this calculation. Daily values are calculated as follows:

(1) On days when more than one (1) measurement for the water quality parameter is collected at the sampling location, the daily value shall be the average of all results collected during the day regardless of whether they are collected through continuous monitoring, grab sampling, or a combination of both.

(2) On days when only one (1) measurement for the water quality parameter is collected at the sampling location, the daily value shall be the results of that measurement.

(3) On days when no measurement is collected for the water quality parameter at the sampling location, the daily value shall be the daily value calculated on the most recent day on which the water quality parameter was measured at the sample site.

(h) Upon its own initiative or in response to a request by a water system or other inter-

ested party, the commissioner may modify its determination of the optimal corrosion control treatment under subsection (d) or optimal water quality control parameters under subsection (f). A request for modification by a system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The commissioner may modify the determination where the commissioner concludes that such change is necessary to ensure that the system continues to optimize corrosion control treatment. A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the commissioner's decision, and provide an implementation schedule for completing the treatment modifications.

[As added at: 25 IR 776.]

327 IAC 8-2-42 ------ Drinking water standards: source water treatment requirements

(a) Systems shall complete the applicable source water monitoring and treatment requirements (described in the referenced portions of subsection (b), and in sections 37 and 39 of this rule) by the following deadlines:

STEP ONE: A system exceeding the lead or copper action level shall complete lead and copper source water monitoring (as required by section 39(b) of this rule) and make a treatment recommendation to the commissioner (as required by subsection (b)(1)) within six (6) months after exceeding the lead or copper action level.

STEP TWO: The commissioner shall make a determination regarding source water treatment (as required by subsection (b)(2)) within six (6) months after submission of monitoring results under STEP ONE.

STEP THREE: If the commissioner requires installation of source water treatment, the system shall install the treatment (as required by subsection (b)(3)) within twenty-four (24) months after completion of STEP TWO.

STEP FOUR: The system shall complete follow-up tap water monitoring (as required by section 37(d)(2) of this rule) and source water monitoring (as required by section 39(c) of this rule) within thirty-six (36) months after completion of STEP TWO.

STEP FIVE: The commissioner shall review the system's installation and operation of source water treatment and specify maximum permissible source water levels (as required by subsection (b)(4)) within six (6) months after completion of STEP FOUR.

STEP SIX: The system shall operate in compliance with the maximum permissible lead and copper source water levels (as required by subsection (b)(4)) specified by the commissioner and continue source water monitoring (as required by section 39(d) of this rule).

(b) Description of source water treatment requirements shall be as follows:

(1) Any system which exceeds the lead or copper action level shall recommend in writing to the commissioner the installation and operation of one (1) of the source water treatments listed in subdivision (2). A system may recommend that no treatment be installed based upon a demonstration that source water treatment is not necessary to minimize lead and copper levels at users' taps.

(2) The commissioner shall complete an evaluation of the results of all source water samples submitted by the water system to determine whether source water treatment is necessary to minimize lead or copper levels in water delivered to users' taps. If the commissioner determines that treatment is needed, the commissioner shall either require installation and operation of the source water treatment recommended by the system (if any) or require the installation and operation of another source water treatment from among the following:

(A) Ion exchange.

(B) Reverse osmosis.

(C) Lime softening.

(D) Coagulation/filtration.

If the commissioner requests additional information to aid in the review, the water system shall provide the information by the date specified by the commissioner in the request. The commissioner shall notify the system in writing of the determination and set forth the basis for the decision.

(3) Each system shall properly install and operate the source water treatment designated by the commissioner under subdivision (2).

(4) The commissioner shall review the source water samples taken by the water system both before and after the system installs source water treatment, and determine whether the system has properly installed and operated the source water treatment designated by the commissioner. Based upon the review, the commissioner shall designate the maximum permissible lead and copper concentrations for finished water entering the distribution system. Such levels shall reflect the contaminant removal capability of the treatment properly operated and maintained. The commissioner shall notify the system in writing and explain the basis for the decision.

(5) Each water system shall maintain lead and copper levels below the maximum permissible concentrations designated by the commissioner at each sampling point monitored in accordance with section 39 of this rule. The system is out of compliance with this subdivision if the level of lead or copper at any sampling point is greater than the maximum permissible concentration designated by the commissioner.

(6) Upon its own initiative or in response to a request by a water system or other interested party, the commissioner may modify the determination of the source water treatment under subdivision (2), or maximum permissible lead and copper concentrations for finished water entering the distribution system under subdivision (4). A request for modification by a system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The commissioner may modify the determination where the commissioner concludes that such change is necessary to ensure that the system continues to minimize lead and copper concentrations in source water. A revised determination shall be made in writing, setting forth the new treatment requirements, explaining the basis for the decision, and providing an implementation schedule for completing the treatment modifications.

[As added at: 18 IR 77.]

327 IAC 8-2-43 ------ Drinking water standards: lead service line replacement

(a) Systems that fail to meet the lead action level in tap samples taken under section 37(d)(2) of this rule, after installing corrosion control treatment or source water treatment, or both (whichever sampling occurs later), shall replace lead service lines in accordance with the requirements of this section. If a system is in violation of section 40 or 42 of this rule for failure to install source water or corrosion control treatment, the commissioner may require the system to commence lead service line replacement under this section after the date by which the system was required to conduct monitoring under section 37(d)(2) of this rule has passed.

(b) A system shall replace annually at least seven percent (7%) of the initial number of lead service lines in its distribution system. The initial number of lead service lines is the number of lead service lines in place at the time the replacement program begins. The system shall identify the initial number of lead service lines in its distribution system, including an identification of the portion or portions owned by the system, based upon a materials evaluation, including the evaluation required under section 37(a) of this rule and relevant legal authorities, for example, to contracts and local ordinances, regarding the portion owned by the system. The first year of lead service line replacement shall begin on the date the action level was exceeded in tap sampling referenced in subsection (a).

(c) A system is not required to replace an individual lead service line if the lead concen-

tration in all service line samples from that line, taken under section 37(b)(3) of this rule, is less than or equal to fifteen-thousandths (0.015) milligram per liter.

(d) A water system shall replace that portion of the lead service line that it owns. In cases where the system does not own the entire lead service line, the system shall notify the owner of the line, or the owner's authorized agent, that the system will replace the portion of the service line that it owns and shall offer to replace the owner's portion of the line. A system is not required to bear the cost of replacing the privately-owned portion of the line, nor is it required to replace the privately-owned portion of the line where the owner chooses not to pay the cost of replacing the privately-owned portion of the line, or where replacing the privately-owned portion of the line would be precluded by state, local, or common law. A water system that does not replace the entire length of the service line also shall complete the following:

(1) At least forty-five (45) days prior to commencing with the partial replacement of a lead service line, the water system shall provide notice to the resident or residents of all buildings served by the line explaining that they may experience a temporary increase of lead levels in their drinking water, along with guidance on measures consumers can take to minimize their exposure to lead. The commissioner may allow the water system to provide notice less than forty-five (45) days prior to commencing partial lead service line replacement where such replacement is in conduction with emergency repairs. In addition, the water system shall inform the resident or residents served by the line that the system will, at the system's expense, collect a sample from each partially-replaced lead service line that is representative of the water in the service line for analysis of lead content, as prescribed under section 37(b)(3) of this rule, within seventy-two (72) hours after the completion of the partial replacement of the service line. The system shall collect the sample and report the results of the analysis to the owner and the resident or residents served by the line within three (3) business days of receiving the results. Mailed notices postmarked within three (3) business days of receiving the result shall be considered on time.

(2) The water system shall provide the information required by this subsection to the residents of individual dwellings by mail or other methods approved by the commissioner. In instances where multifamily dwellings are served by the line, the water system shall have the option to post the information at a conspicuous location.

(e) The commissioner may require a system to replace lead service lines on a shorter schedule than that required by this section, taking into account the number of lead service lines in the system, where a shorter replacement schedule is feasible. The commissioner shall make this determination in writing and notify the system of the determination within six (6) months after the system is triggered into lead service line replacement based on monitoring referenced in subsection (a).

(f) Any system may cease replacing lead service lines whenever first draw samples collected under section 37(d)(3) of this rule meet the lead action level during each of two (2) consecutive monitoring periods and the system submits the results to the commissioner. If the lead tap samples in any such water system thereafter exceeds the lead action level, the system shall recommence replacing lead service lines under subsection (b).

(g) To demonstrate compliance with subsections (a) through (d), a system shall report to the commissioner the information specified in section 46(e) of this rule.

[As amended at: 25 IR 778.]

327 IAC 8-2-44 ------ Drinking water standards: public education and supplemental monitoring; lead and copper

(a) A water system that exceeds the lead action level based on tap water samples collected in accordance with section 37 of this rule shall deliver the public education materials contained in the following requirements and subsection (b) in accordance with the requirements in subsection (c):

(1) A community water system shall include the text as established in this subdivision in all the printed materials it distributes through its lead public education program. A system may delete information pertaining to lead service lines, upon approval of the commissioner, if no lead service lines exist anywhere in the water system service area. Public education language at clause (D)(ii)(EE) and (D)(iv)(BB) may be modified regarding building permit record availability and consumer access to these records, if approved by the commissioner. A system may also continue to use preprinted public education materials that meet previous versions of this rule. Any additional information presented by a system shall be consistent with the following information and be in plain English that can be understood by lay persons:

(A) The Indiana department of environmental management (IDEM) and (insert name of water supplier) are concerned about lead in your drinking water. Although most homes have very low levels of lead in their drinking water, some homes in the community have lead levels above the action level of fifteen (15) parts per billion or fifteen-thousandths (0.015) milligram of lead per liter of water. Under state law, we are required to have a program in place to minimize lead in your drinking water by (insert date when corrosion control will be completed for your system). This program includes corrosion control treatment, source water treatment, and public education. We are also required to replace each lead service line that we control if the line contributes lead concentrations of more than fifteen (15) parts per billion after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation, please give us a call at (insert water systems phone number). This brochure explains the simple steps you can take to protect you and your family by reducing your exposure to lead in drinking water.

(B) Lead is a common metal found throughout the environment in lead-based paint, air, soil, household dust, food, certain types of pottery, porcelain, and pewter, and water. Lead can pose a significant risk to your health if too much of it enters your body. Lead builds up in the body over many years and can cause damage to the brain, red blood cells, and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that won't hurt adults can slow down normal mental and physical development in growing bodies. In addition, a child at play often comes in contact with sources of lead contamination, like dirt and dust, that rarely affect an adult. It is important to wash children's hands and toys often, and try to make sure they only put food in their mouths.

(C) The following information is known about lead in drinking water:

(i) Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water. The EPA estimates that drinking water can make up twenty percent (20%) or more of a person's total exposure to lead.

(ii) Lead is unusual among drinking water contaminants in that it seldom occurs naturally in water supplies like rivers and lakes. Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in the water distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass and chrome plated brass faucets, and in some cases, pipes made of lead that connect your house to the water main (service lines). In 1986, Congress banned the use of lead solder containing greater than two-tenths percent (0.2%) lead and restricted the lead content of faucets, pipes, and other plumbing material to eight percent (8%).

(iii) When water stands in lead pipes or plumbing systems containing lead for several hours or more, the lead may dissolve into your drinking water.

This means the first water drawn from the tap in the morning, or later in the afternoon after returning from work or school, can contain fairly high levels of lead.

(D) The following are steps you can take in the home to reduce exposure to lead in drinking water:

(i) Despite our best efforts mentioned earlier to control water corrosivity and remove lead from the water supply, lead levels in some homes or buildings can be high. To find out whether you need to take action in your own home, have your drinking water tested to determine if it contains high concentrations of lead. Testing the water is essential because you cannot see, taste, or smell lead in drinking water. Some local laboratories that can provide this service are listed at the end of this booklet. For more information on having your water tested, please call (insert phone number of water system).

(ii) If a water test indicates that the drinking water drawn from a tap in your home contains lead above fifteen (15) parts per billion, then you should take the following precautions:

(AA) Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has gone unused for more than six (6) hours. The longer the water resides in your home's plumbing, the more lead it may contain. Flushing the tap means running the cold water faucet until the water gets noticeably colder, usually about fifteen (15) to thirty (30) seconds. If your house has a lead service line to the water main, you may have to flush the water for a longer time, perhaps one (1) minute, before drinking. Although toilet flushing or showering flushes water through a portion of your home's plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your family's health. It usually uses less than one (1) or two (2) gallons of water and costs less than (insert a cost estimate based on two (2) times a day for thirty (30) days) per month. To conserve water, fill a couple of bottles for drinking water after flushing the tap, and whenever possible use the first flush water to wash the dishes or water the plants. If you live in a high rise building, letting the water flow before using it may not work to lessen your risk from lead. The plumbing systems have more and sometimes longer pipes than in smaller buildings. Ask your landlord for help in finding the source of lead and for advice on reducing the lead level.

(BB) Try not to cook with or drink water from the hot water tap. Hot water can dissolve more lead more quickly than cold water. If you need hot water, draw it from the cold tap and heat it on the stove.

(CC) Remove loose lead solder and debris from the plumbing materials in newly constructed homes, or homes where the plumbing has been recently replaced, by removing the faucet strainers from all taps and running the water for three (3) to five (5) minutes. Thereafter, periodically remove the strainers and flush out any debris that has accumulated over time.

(DD) If your copper pipes are joined with lead solder that has been installed illegally since it was banned in 1986, contact the plumber who did the work and request that he or she replace the solder with lead-free solder. Lead solder looks dull gray, and when scratched with a key looks shiny. In addition, notify the Indiana department of environmental management about the violation.

(EE) Determine whether the service line that connects your home or apart-

ment to the water main is made of lead. The best way to determine if your service line is made of lead is by either hiring a licensed plumber to inspect the line or by contacting the plumbing contractor who installed the line. You can identify the plumbing contractor by checking the city's record of building permits which should be kept in the files of (insert the department that handles building permits). A licensed plumber can, at the same time, check to see if your home's plumbing contains lead solder, lead pipes, or pipe fittings that contain lead. The public water system that delivers the water to your home should also maintain records of the materials located in the distribution system. If the service line that connects your dwelling to the water main contributes more than fifteen (15) parts per billion to drinking water, after our comprehensive treatment program is in place, we are required to replace the line. If the line is only partially owned by the (insert name of the water system that owns the line), we are required to provide the owner of the privately-owned portion of the line with information on how to replace the privately-owned portion of the service line, and offer to replace that portion of the line at the owner's expense. If we replace only the portion of the line that we own, we are also required to notify you in advance and provide you with information on the steps you can take to minimize exposure to any temporary increase in lead levels that may result from the partial replacement, to take a follow-up sample within seventy-two (72) hours of the partial replacement, and to mail or otherwise provide you with the results of that sample within three (3) business days of receiving the results. Acceptable replacement alternatives include copper, steel, iron, and plastic pipes.

(FF) Have an electrician check your wiring. If grounding wires from the electrical system are attached to your pipes, corrosion may be greater. Check with a licensed electrician or your local electrical code to determine whether your wiring can be grounded elsewhere. DO NOT attempt to change the wiring yourself, because improper wiring can cause electrical shock and fire hazards.

(iii) The steps described above will reduce the lead concentrations in your drinking water. However, if a water test indicates that the drinking water coming from your tap contains lead in excess of fifteen (15) parts per billion after flushing, or after we have completed our actions to minimize lead levels, then you may want to take the following additional measures:

(AA) Purchase or lease a home treatment device. Home treatment devices are limited in that each unit treats only the water that flows from the faucet to which it is connected, and all the devices require periodic maintenance and replacement. Devices such as reverse osmosis systems or distillers can effectively remove lead from your drinking water. Some activated carbon filters may reduce lead levels at the tap, however, all lead reduction claims should be investigated. Be sure to check the actual performance of a specific home treatment device before and after installing the unit.

(BB) Purchase bottled water for drinking and cooking.

(iv) You can consult a variety of sources for additional information. Your family doctor or pediatrician can perform a blood test for lead and provide you with information about the health effects of lead. State and local government agencies that can be contacted include:

(AA) (insert the name of city or county department of public utilities) at (insert phone number) can provide you with information about your community's water supply and a list of local laboratories that have

been certified by the state for testing water quality;

(BB) (insert the name of city or county department that issues building permits) at (insert phone number) can provide you with information about building permit records that should contain the names of plumbing contractors that plumbed your home; and

(CC) (insert name of the state department of public health) at (insert phone number) or the (insert the name of the city or county health department) at (insert phone number) can provide you with information about the health effects of lead and how you can have your child's blood tested.

(v) The following is a list of some state approved laboratories in your area that you can call to have your water tested for lead. (Insert names and addresses of at least two (2) laboratories.)

(2) A nontransient noncommunity water system shall either include the text specified in subdivision (1) or shall include the following text in all of the printed materials it distributes through its public education program. Water systems may delete information pertaining to lead service lines upon approval of the commissioner if no lead service lines exist anywhere in the water system service area. Any additional information presented by a system shall be in plain English that can be easily understood and is consistent with the following information:

(A) The Indiana department of environmental management (IDEM) and (insert name of water supplier) are concerned about lead in your drinking water. Some drinking water samples taken from this facility have lead levels above the action level of fifteen (15) parts per billion (ppb), or fifteen-thousandths (0.015) milligram per liter (mg/l). Under state law, we are required to have a program in place to minimize lead in your drinking water by (insert date when corrosion control will be completed for your system). This program includes corrosion control treatment, source water treatment, and public education. We are also required to replace the portion of each lead service line that we own if the line contributes more than fifteen (15) ppb after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation, please give us a call at (insert water system's phone number). This brochure explains the simple steps you can take to protect yourself by reducing your exposure to lead in drinking water.

(B) Lead is found throughout the environment in lead-based paint, air, soil, household dust, food, certain types of pottery, porcelain, and pewter, and water. Lead can pose a significant risk to your health if too much of it enters your body. Lead builds up in the body over many years and can cause damage to the brain, red blood cells, and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that would not hurt adults can slow down normal mental and physical development of growing bodies. In addition, a child at play often comes into contact with sources of lead contamination, like dirt and dust, that rarely affect an adult. It is important to wash children's hands and toys often, and to try to make sure they only put food in their mouths.

(C) The following explains lead contamination in drinking water:

(i) Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water. The EPA estimates that drinking water can make up twenty percent (20%) or more of a person's total exposure to lead.

(ii) Lead is unusual among drinking water contaminants in that it seldom occurs naturally in water supplies like rivers and lakes. Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials

containing lead in the water distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass and chrome-plated brass faucets, and in some cases, pipes made of lead that connect houses and buildings to water mains (service lines). In 1986, Congress banned the use of lead solder containing greater than two-tenths percent (0.2%) lead, and restricted the lead content of faucets, pipes, and other plumbing materials to eight and zero-tenths percent (8.0%).

(iii) When water stands in lead pipes or plumbing systems containing lead for several hours or more, the lead may dissolve into your drinking water. This means the first draw water drawn from the tap in the morning, or later in the afternoon if the water has not been used all day, can contain fairly high levels of lead.

(D) The following are steps you can take to reduce exposure to lead in drinking water:

(i) Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has gone unused for more than six (6) hours. The longer water resides in plumbing the more lead it may contain. Flushing the tap means running the cold water faucet for about fifteen (15) to thirty (30) seconds. Although toilet flushing or showering flushes water through a portion of the plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your health. It usually uses less than one (1) gallon of water.

(ii) Do not cook with or drink water from the hot water tap. Hot water can dissolve lead more quickly than cold water. If you need hot water, draw water from the cold water tap and then heat it.

(iii) The steps described in items (i) and (ii) will reduce the lead concentrations in your drinking water. However, if you are still concerned, you may wish to use bottled water for drinking and cooking.

(iv) You can consult a variety of sources for additional information. Your family doctor or pediatrician can perform a blood test for lead and provide you with information about the health effects of lead. State and local government agencies that can be contacted include:

(AA) (insert name or title of facility official if appropriate) at (insert phone number) can provide you with information about your facility's water supply; and

(BB) (insert name or the Indiana state department of health) at (insert phone number) or (insert the name of the city or county health department) at (insert phone number) can provide you with information about the health effects of lead.

(b) A water system shall include the following information in all public service announcements submitted under its lead public education program to television and radio stations for broadcasting:

(1) Why should everyone want to know the facts about lead and drinking water? Because unhealthy amounts of lead can enter drinking water through the plumbing in your home. That's why I urge you to do what I did. I had my water tested for (insert free or cost in dollars per sample). You can contact the (insert the name of the city or water system) for information on testing and on simple ways to reduce your exposure to lead in drinking water.

(2) To have your water tested for lead or to get more information about this public health concern, please call (insert the phone number of the city or water system).

(c) Requirements for delivery of a public education program shall be as follows:

(1) In communities where a significant portion of the population speaks a language

other than English, public education materials shall be communicated in the appropriate language.

(2) A community water system that exceeds the lead action level on the basis of tap water samples collected in accordance with section 37 of this rule, and that is not already repeating public education pursuant to subdivision (3), (7), or (8), shall, within sixty (60) days, do the following:

(A) Insert notices in each customer's water utility bill containing the information in subsection (a)(1), along with the following alert on the water bill itself in large print: "SOME HOMES IN THIS COMMUNITY HAVE ELEVATED LEAD LEVELS IN THEIR DRINKING WATER. LEAD CAN POSE A SIGNIFICANT RISK TO YOUR HEALTH. PLEASE READ THE ENCLOSED NOTICE FOR FURTHER INFORMATION.". A community water system that has a billing cycle that does not include a billing within sixty (60) days of exceeding the action level, or that cannot insert information in the water utility bill without making major changes to its billing system, may use a separate mailing to deliver the information in subsection (a)(1) as long as the information is delivered to each customer within sixty (60) days of exceeding the action level. Such water systems shall also include the alert language specified in this clause.

(B) Submit the information in subsection (a)(1) to the editorial department or departments of the major daily and weekly newspapers circulated throughout the community.

(C) Deliver pamphlets or brochures, or both, that contain the public education materials in subsections [sic., subsection] (a)(1)(B) and (a)(1)(D) to facilities and organizations, including the following:

(i) Public schools and local school boards.

(ii) City or county health department.

(iii) Women, infants, and children and head start programs, whenever available.

(iv) Public or private hospitals and clinics.

(v) Pediatricians.

(vi) Family planning clinics.

(vii) Local welfare agencies.

(D) Submit the public service announcement in subsection (b) to at least five (5) of the radio and television stations with the largest audiences that broadcast to the community served by the water system.

(3) A community water supply system shall repeat the tasks contained in subdivision (2)(A) through (2)(C) every twelve (12) months, and the tasks contained in subdivision (2)(D) every six (6) months for as long as the system exceeds the lead action level.

(4) Within sixty (60) days after it exceeds the lead action level, unless it is already repeating public education tasks pursuant to subdivision (5), a nontransient noncommunity water system shall deliver the public education materials contained in subsection (a)(1) or (a)(2) as follows:

(A) Post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system.

(B) Distribute informational pamphlets or brochures, or both, on lead in drinking water to each person served by the nontransient noncommunity water system.

The commissioner may allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as it achieves at least the same coverage.

(5) A nontransient noncommunity water system shall repeat the tasks contained in subdivision (4) at least once during each calendar year in which the system exceeds the lead action level.

(6) A water system may discontinue delivery of public education materials if the system has met the lead action level during the most recent six (6) month monitoring period conducted under section 37 of this rule. Such a system shall recommence public education in accordance with this section if it subsequently exceeds the lead action level during any monitoring period.

(7) A community water system may apply to the commissioner, in writing, to use the text specified in subsection (a)(2) in lieu of the text in subsection (a)(1) and to perform the tasks listed in subdivisions (4) and (5) in lieu of the tasks in subdivisions (2) and (3) if the following conditions are met:

(A) The system provides water as part of the costs of services provided and does not separately charge for water consumption.

(B) A community water system serving three thousand three hundred (3,300) or fewer people may omit the task contained in subdivision (2)(D). As long as the information contained in subsection (a)(1) to every household served by the system, such systems may further limit their public education program as follows:

(i) Systems serving five hundred (500) or fewer people may omit the requirement in subdivision (2)(B). Such a system may limit the distribution of the public education materials required under subdivision (2)(C) to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children, unless it is notified by the commissioner in writing that it must make a broader distribution.

(ii) If approved by the commissioner in writing, a system serving five hundred one (501) to three thousand three hundred (3,300) people may omit the requirement of subdivision (2)(B) or may limit the distribution of the public education materials required under subdivision (2)(C), or both, to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children.

(C) A community water system serving three thousand three hundred (3,300) or fewer people that delivers public education in accordance with clause (A) shall repeat the required public education tasks at least once during each calendar year in which the system exceeds the lead action level.

(d) A water system that fails to meet the lead action level on the basis of tap samples collected in accordance with section 37 of this rule shall offer to sample the tap water of any customer who requests it. The system is not required to pay for collecting or analyzing the sample, and the system is not required to collect and analyze the sample itself.

[As amended at: 25 IR 779.]

327 IAC 8-2-45 ------ Drinking water standards: analytical methods; lead and copper

(a) Analysis for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica, and temperature shall be conducted using the following methods:

(1) Lead as follows:

(A) Atomic absorption; furnace technique, Method D3559-90D*, Method D3559-96*, or Method 3113B*.

(B) Inductively-coupled plasma; mass spectrometry, Method 200.8*.

(C) Atomic absorption; platform furnace technique, Method 200.9*.

(D) Differential pulse anodic stripping voltammetry, Method 1001*.

(2) Copper as follows:

(A) Atomic absorption; furnace technique, Method D1688-90C*, Method D1688-95C*, or Method 3113B*.

(B) Atomic absorption; direct aspiration, Method D1688-90A*, Method D1688-95A*, or Method 3111B*.

(C) Inductively-coupled plasma; Method 200.7* or Method 3120B*.

(D) Inductively-coupled plasma; mass spectrometry, Method 200.8*.

(E) Atomic absorption; platform furnace, Method 200.9*.

(3) pH, electrometric, Method 150.1*, Method 150.2*, Method D1293-84*, Method D1293-95*, or Method 4500-H^+-B*.

(4) Conductivity, conductance, Method D1125-91A*, Method D1125-95A*, or Method 2510B*.

(5) Calcium as follows:

(A) EDTA titrimetric, Method D511-93A* or Method 3500-Ca-D*.

(B) Atomic absorption; direct aspiration, Method D511-93B* or Method 3111-B*.

(C) Inductively-coupled plasma, Method 200.7 or Method 3120B*.

(6) Alkalinity as follows:

(A) Titrimetric, Method D1067-92B* or Method 2320B.

(B) Electrometric titration, Method I-1030-85*.

(7) Orthophosphate, unfiltered, no digestion or hydrolysis as follows:

(A) Colorimetric, automated, ascorbic acid, Method 365.1* or Method 4500-P-F*.

(B) Colorimetric, ascorbic acid, single reagent, Method D515-88A* or Method 4500-P-E*.

(C) Colorimetric, phosphomolybdate, Method I-1601-85* or automated-segmented flow, Method I-2601-90*, or automated discrete, Method I-2598-85*.

(D) Ion chromatography, Method 300.0*, Method D4327-91*, or Method 4110B*.

(8) Silica as follows:

(A) Colorimetric, molybdate blue, Method I-1700-85 or automated-segmented flow, Method I-2700-85*.

(B) Colorimetric, Method D859-88* or Method D859-95*.

(C) Molybdosilicate, Method 4500-Si-D*.

(D) Heteropoly blue, Method 4500-Si-E*.

(E) Automated method for molybdate-reactive silica, Method 4500-Si-F*.

(F) Inductively-coupled plasma, Method 200.7* or Method 3120B*.

(9) Temperature, thermometric, Method 2550*.

(b) Analyses for alkalinity, calcium, conductivity, orthophosphate, pH, silica, and temperature may be performed by any person acceptable to the commissioner. Analyses under this section for lead and copper shall only be conducted by laboratories that have been certified by the EPA or the commissioner. To obtain certification to conduct analysis for lead and copper, laboratories must do the following:

(1) Successfully analyze performance evaluation (PE) samples which include lead and copper provided by or acceptable to EPA or the commissioner at least once each year by each method for which the laboratory desires certification.

(2) Achieve quantitative acceptance limits as follows:

(A) For lead, plus or minus thirty percent (30%) of the actual amount in the performance evaluation sample when the actual amount is greater than or equal to five-thousandths (0.005) milligram per liter.

(B) For copper, plus or minus ten percent (10%) of the actual amount in the perfor-

mance evaluation sample when the actual amount is greater than or equal to five-thousandths (0.005) milligram per liter.

(3) Achieve the method detection limit for lead of one-thousandth (0.001) milligram per liter according to the procedures in Appendix B of 40 CFR 136 (July 1, 1991). This need only be done if the laboratory will be processing source water composite samples under section 39 of this rule.

(4) Be currently certified by EPA or the state to perform analyses to the specifications described in subsection (a)(2).

(c) The commissioner has the authority to allow the use of previously collected monitoring data for purposes of monitoring if the data were collected and analyzed in accordance with the requirements of sections 36 through 44 of this rule, this section, and sections 46 and 47 of this rule.

(d) All lead levels measured between the practical quantitation level and the method detection limit must be either reported as measured or they can be reported as one-half (_) the practical quantitation level (twenty-five thousandths (0.025) milligram per liter). All levels below the lead method detection level must be reported as zero (0).

(e) All copper levels measured between the practical quantitation level and the method detection limit must be either reported as measured or they can be reported as one-half (_) the practical quantitation level (twenty-five thousandths (0.025) milligram per liter). All levels below the copper method detection limit must be reported as zero (0).

[1]For analyzing lead and copper, the technique applicable to total metals must be used and samples cannot be filtered.

*Methods referenced in this section may be obtained as follows:

(1) Methods 150.1 and 150.2, may be found in "Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79/020, March 1983, available from NTIS, PB84-128677, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.

(2) Methods 200.7, 200.8, and 200.9 may be found in "Methods for the Determination of Metals in Environmental Samples-Supplement 1", EPA-600/R-94-111, May 1994, available from NTIS, PB95-125472, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.

(3) Methods D3559-90D, D1688-90C, D1688-90A, D1293-84, D1125-91A, and D859-88 may be found in "Annual Book of ASTM Standards", Vols. 11.01, 1994, American Society for Testing and Materials, available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428.

(4) Methods D1067-92B, D511-93A, D511-93B, D1688-95C, D1688-95A, D1125-95A, D3559-96, D515-88A, D4327-91, D1293-95, and D859-95 may be found in "Annual Book of ASTM Standards, Vols. 11.01 and 11.02, 1994 and 1996, available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428.

(5) Methods 2320B, 3113B, 3111B, 3120B, 4500-H^+-B, 2510B, 3500-Ca-D, 2320B, 4500-P-F, 4500-P-E, 4110B, 4500-Si- D, 4500-Si-E, 4500-Si-F, and 2550 may be found in "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, and "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995, American Public Health Association, available from the American Public Health Association, 1015 Fifteenth Street N.W., Washington, D.C. 20005. Either edition may be used.

(6) Methods I-1030-85, I-1601-85, I-2598-85, I-1700-85, and I-2700-85 may be found in "Techniques of Water Resources Investigation of the U.S. Geological Survey", Book 5, Chapter A-1, 3rd Edition, 1989, available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, Colorado 80225-0425.

(7) Method I-2601-90 may be found in "Methods for Analysis by the U.S. Geological Survey National Water Quality Laboratory - Determination of Inorganic and Or-

ganic Constituents in Water and Fluvial Sediments", Open File Report 93-125, 1993, available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, Colorado 80225-0425.

(8) Methods 365.1 and 300.0 may be found in "Methods for the Determination of Inorganic Substances in Environmental Samples", EPA-600/R-93-100, August 1993, available from NTIS, PB94-120821, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.

(9) Method 1001 is available from Palintest, LTC, 21 Kenton Lands Road, P.O. Box 18395, Erlanger, Kentucky 41018 or from the Hach Company, P.O. Box 389, Loveland, Colorado 80539-0389.

These methods are also available for copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

[As amended at: 24 IR 3978.]

327 IAC 8-2-46 ------ Drinking water standards: reporting requirements; lead and copper

(a) Reporting requirements for tap water monitoring for lead and copper and for water quality parameter monitoring shall be as follows:

(1) Except as provided in clause (G), a water system shall report the following information for all tap water samples within the first ten (10) days following the end of each applicable monitoring period specified in sections 37 and 38 of this rule, that is, every six (6) months, annually, every three (3) years, or every nine (9) years:

(A) The results of all tap samples for lead and copper, including the location of each site and the criteria under section 37(a)(3) through 37(a)(7) of this rule, or any under which the site was selected for the system's sampling pool.

(B) Documentation for each tap water lead or copper sample for which the system requests an invalidation pursuant to section 37(f)(2) of this rule.

(C) The ninetieth percentile lead and copper concentrations measured from among all lead and copper tap samples collected during each monitoring period (calculated in accordance with section 36(c)(3) of this rule unless the commissioner calculates the system's ninetieth percentile lead and copper levels under subsection (h).

(D) With the exception of initial tap sampling conducted under section 37(d)(1) of this rule, the system shall designate any site which was not sampled during previous monitoring periods and include an explanation of why sampling sites have changed.

(E) The results of all tap samples for pH, and where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica collected under section 38(c) through 38(f) of this rule.

(F) The results of all samples collected at the entry point to the distribution system for applicable water quality parameters under section 38(c) through 38(f) of this rule.

(G) A water system shall report the results of all water quality parameter samples collected under section 38(c) through 38(f) of this rule during each six (6) month monitoring period specified in section 38(d) of this rule within the first ten (10) days following the end of the monitoring period unless the commissioner has specified a more frequent reporting requirement.

(2) For a nontransient noncommunity water system or a community water system meeting the criteria of section 44(c)(7)(A) and 44(c)(7)(B) of this rule, that does not have enough taps that can provide first-draw samples, the system must do either of the following:

(A) Provide written documentation to the commissioner identifying standing times and locations for enough nonfirst-draw samples to make up its sampling pool

under section 37(b)(5) of this rule by the start of the first applicable monitoring period under section 37(d) of this rule that commences after April 11, 2000, unless the commissioner has waived prior approval of nonfirst-draw sample sites selected by the system pursuant to section 37(b)(5) of this rule.

(B) If the commissioner has waived prior approval of nonfirst-draw sample sites selected by the system, identify, in writing, each site that did not meet the six (6) hour minimum standing time and the length of the standing time for that particular substitute sample collected pursuant to section 37(b)(5) of this rule and include this information with the lead and copper tap sample results required to be submitted pursuant to subdivision (1)(A).

(3) No later than sixty (60) days after the addition of a new source or any change in water treatment unless the commissioner requires earlier notification, a water system deemed to have optimized corrosion control under section 40(b)(3) of this rule, a water system subject to reduced monitoring pursuant to section 37(d)(4) of this rule, or a water system subject to a monitoring waiver pursuant to section 37(g) of this rule, shall send written documentation to the commissioner describing the change. In those instances where prior approval by the commissioner of the treatment change or new source is not required, water systems are encouraged to provide the notification to the commissioner beforehand to minimize the risk the treatment change or new source will adversely affect optimal corrosion control.

(4) Any small system applying for a monitoring waiver under section 37(g) of this rule, or subject to a waiver granted pursuant to section 37(g)(3) of this rule, shall provide the following information to the commissioner in writing by the specified deadline:

(A) By the start of the first applicable monitoring period in section 37(d) of this rule, any small water system applying for a monitoring waiver shall provide the documentation required to demonstrate that it meets the waiver criteria of section 37(g)(1) and 37(g)(2) of this rule.

(B) No later than nine (9) years after the monitoring previously conducted pursuant to section 37(g)(2) or 37(g)(4)(A) of this rule, each small system desiring to maintain its monitoring waiver shall provide the information required by section 37(g)(4)(A) and 37(g)(B) [of this rule].

(C) No later than sixty (60) days after it becomes aware that it is no longer free of lead or copper containing materials, or both, each small system with a monitoring waiver shall provide written notification to the commissioner, setting forth the circumstances resulting in the lead or copper containing materials or both, being introduced into the system and what corrective action, if any, the system plans to remove these materials.

(D) By October 10, 2000, any small system with a waiver granted prior to April 11, 2000, and that has not previously met the requirements of section 37(g)(2) of this rule shall provide the information required.

(5) Each ground water system that limits water quality parameter monitoring to a subset of entry points under section 38(d)(3) of this rule shall provide, by the commencement of such monitoring, written correspondence to the commissioner that identifies the selected entry points and includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

(b) Source water monitoring reporting requirements shall be as follows:

(1) A water system shall report the sampling results for all source water samples collected in accordance with section 39 of this rule within the first ten (10) days following the end of each source water monitoring period, that is, annually, per compliance period, per compliance cycle, specified in section 39 of this rule.

(2) With the exception of the first round of source water sampling conducted under

section 39(b) of this rule, the system shall specify any site which was not sampled during previous monitoring periods and include an explanation of why the sampling point has changed.

(c) This subsection establishes requirements for corrosion control treatment reporting. By the applicable dates under section 40 of this rule, systems shall report the following information:

(1) For systems demonstrating that they already have optimized corrosion control, information required in section 40(b)(2) or 40(b)(3) of this rule.

(2) For systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment under section 41(a) of this rule.

(3) For systems required to evaluate the effectiveness of corrosion control treatments under section 41(c) of this rule, the information required under that subsection.

(4) For systems required to install optimal corrosion control designated by the commissioner under section 41(d) of this rule, a letter certifying that the system has completed installing that treatment.

(d) This subsection establishes requirements for source water treatment reporting. By the applicable dates in section 42 of this rule, systems shall provide the following information to the commissioner:

(1) If required under section 42(b)(1) of this rule, their recommendation regarding source water treatment.

(2) For systems required to install source water treatment under section 42(b)(2) of this rule, a letter certifying that the system has completed installing the treatment designated by the commissioner within twenty-four (24) months after the commissioner designated the treatment.

(e) This subsection establishes requirements for lead service line replacement reporting. Systems shall report the following information to the commissioner to demonstrate compliance with the requirements of section 43 of this rule:

(1) Within twelve (12) months after a system exceeds the lead action level in sampling referred to in section 43(a) of this rule, the system shall demonstrate in writing to the commissioner that it has conducted a material evaluation, including the evaluation in section 37(a) of this rule, to identify the initial number of lead service lines in its distribution system, and shall provide the commissioner with the system's schedule for replacing annually at least seven percent (7%) of the initial number of lead service lines within its distribution system.

(2) Within twelve (12) months after a system exceeds the lead action level in sampling referred to in section 43(a) of this rule, and every twelve (12) months thereafter, the system shall demonstrate to the commissioner in writing that the system has done either of the following:

(A) Replaced in the previous twelve (12) months, at least seven percent (7%) of the initial lead service lines (or a greater number of lines specified by the commissioner under section 43(e) of this rule) in its distribution system.

(B) Conducted sampling which demonstrates that the lead concentration in all service line samples from an individual line, taken under section 37(b)(3) of this rule, is less than or equal to fifteen-thousandths (0.015) milligram per liter. In such cases, the total number of lines replaced and which meet the criteria in section 43(b) of this rule, shall equal at least seven percent (7%) of the initial number of lead lines identified under subsection (a) (or the percentage specified by the commissioner under section 43(e) of this rule).

(3) The annual letter submitted to the commissioner under subdivision (2) shall contain the following information:

(A) The number of lead service lines scheduled to be replaced during the previous year of the system's replacement schedule.

(B) The number and location of each lead service line replaced during the previ-

ous year of the system's replacement schedule.

(C) If measured, the water lead concentration and location of each service line sampled, the sampling method, and the date of sampling.

(4) Any system that collects lead service line samples following partial lead service line replacement required by section 43 of this rule shall report the results to the commissioner within the first ten (10) days of the month following the month when the system receives the laboratory results or as specified by the commissioner. A system shall also report any additional information as specified by the commissioner. The results shall be reported in the time and manner prescribed by the commissioner to verify that all partial lead service line replacement activities have taken place.

(f) The following are requirements for public education program reporting:

(1) Any water system that is subject to the public education requirements in section 44 of this rule shall, within ten (10) days after the end of each period in which the system is required to perform public education tasks in accordance with section 44(c) of this rule, send written documentation to the commissioner that contains the following information:

(A) A demonstration that the system has delivered the public education materials that meet the content requirements in section 44(a) and 44(b) of this rule and the delivery requirements in section 44(c) of this rule.

(B) A list of all the newspapers, radio stations, television stations, facilities, and organizations to which the system delivered public education materials during the period in which the system was required to perform the public education tasks.

(2) Unless required by the commissioner, a system that previously submitted the information required by subdivision (1)(B), as long as there have been no changes in the distribution list and the system certifies that the public education materials were distributed to the same list submitted previously.

(g) Any system that collects sampling data in addition to that required by sections 36 through 45 of this rule, this section, and section 47 of this rule shall report the results to the commissioner within the first ten (10) days following the end of the applicable monitoring period under sections 37 through 39 of this rule during which the samples are collected.

(h) A water system is not required to report the ninetieth percentile lead and copper concentrations measured from among all lead and copper tap water samples collected in each monitoring period as required by subsection (a)(1)(C) if the following conditions are met:

(1) The commissioner has previously notified the water system that it will calculate the water system's ninetieth percentile lead and copper concentrations, based on the lead and copper results submitted pursuant to subdivision (2)(A), and has specified a date before the end of the applicable monitoring period by which the system must provide the results of lead and copper tap water samples.

(2) The system has provided the following information to the commissioner by the date specified in subdivision (1):

(A) The results of all tap samples for lead and copper including the location of each site and the criteria under section 37(a)(3), 37(a)(4), 37(a)(5), 37(a)(6), or 37(a)(7) of this rule, under which the site was selected for the system's sampling pool, pursuant to subsection (a)(1)(A).

(B) An identification of the sampling sites utilized during the current monitoring period that were not sampled during previous monitoring periods, and an explanation why sampling sites have changed.

(3) The commissioner has provided the results of the ninetieth percentile lead and copper calculations, in writing, to the water system before the end of the monitoring period.

[As amended at: 25 IR 784.]

327 IAC 8-2-47 ------ Drinking water standards: record keeping requirements; lead and copper

Any system subject to the requirements of sections 37 through 44 of this rule shall retain on its premises original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, commissioner determinations, and any other information required by sections 37 through 44 of this rule. Each water system shall retain the records required by this section for no fewer than twelve (12) years.

[As added at: 18 IR 86.]

RULE 2.1. CONSUMER CONFIDENCE REPORTS

327 IAC 8-2.1-1 ----- Consumer confidence reports: purpose; applicability; definitions

(a) This rule establishes the minimum requirements for the content of annual reports that a community water system shall deliver to its customers. These reports must contain information on the quality of the water delivered by the system and characterize the risks, if any, from exposure to contaminants detected in the drinking water in an accurate and understandable manner.

(b) This rule applies only to community water systems.

(c) In addition to the definitions contained in 327 IAC 8-2-1, the following definitions apply throughout this rule:

(1) "Customers" means billing units or service connections to which water is delivered by a community water system.

(2) "Department" means the Indiana department of environmental management.

(3) "Detected" means at or above the levels prescribed by 327 IAC 8-2-4.1, 327 IAC 8-2-5.1, 327 IAC 8-2-5.5, and 327 IAC 8-2-10.1.

[As added at: 23 IR 1898.]

327 IAC 8-2.1-2 ----- Consumer confidence reports: effective dates

(a) An existing community water system shall deliver its first report no later than October 19, 1999, its second report no later than July 1, 2000, and subsequent reports no later than July 1 annually thereafter. The first report must contain data collected during, or prior to, calendar year 1998, as specified in section 3(d)(5) of this rule. Each report thereafter must contain data collected during, or prior to, the previous calendar year.

(b) A new community water system shall deliver its first report no later than July 1 of the year after its first full calendar year in operation and no later than July 1 annually thereafter.

(c) A community water system that sells water to another community water system shall deliver the applicable information required in section 3 of this rule to the buyer system:

(1) no later than April 19, 1999, no later than April 1, 2000, and no later than April 1 annually thereafter; or

(2) on a date mutually agreed upon by the seller and the purchaser and specifically included in a contract between the parties.

[As added at: 23 IR 1898.]

327 IAC 8-2.1-3 ----- Consumer confidence reports: content of the reports

(a) A community water system shall provide to its customers an annual report that contains the information specified in this section and section 4 of this rule.

(b) The report must contain information on the source of the water delivered, including the following:

(1) The source or sources of water delivered by the community water system, including information on:

(A) the type of water, such as surface water or ground water; and

(B) the commonly used name, if any, and location of the body or bodies of water.

(2) If a source water assessment has been completed, the report must notify the consumers of the availability of this information and the means to obtain it. In addition, systems are encouraged to highlight in the report significant sources of contamination in the source water area if they have readily available information. Where a system has received a source water assessment from the commissioner, the report must include a brief summary of the system's susceptibility to potential sources of contamination, using language provided by the commissioner or written by the operator.

(c) The report must include the following definitions as applicable:

(1) "'Maximum contaminant level goal' or 'MCLG' means the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.".

(2) "'Maximum contaminant level' or 'MCL' means the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.".

(3) A report that contains data on a contaminant for which the department or EPA has set a treatment technique or an action level must include one (1) or both of the following definitions, as applicable:

(A) "'Treatment technique' means a required process intended to reduce the level of a contaminant in drinking water.".

(B) "'Action level' means the concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system shall follow.".

(d) A report must include the information specified in this subsection for the following contaminants subject to mandatory monitoring, other than Cryptosporidium:

(1) Contaminants subject to an MCL, action level, or treatment technique, hereafter referred to as regulated contaminants.

(2) Disinfection byproducts or microbial contaminants for which monitoring is required by 40 CFR 141.142* and 40 CFR 141.143*, except as provided in subsection (e)(1), and that are detected in the finished water.

(3) The data relating to these contaminants must be displayed in one (1) table or in several adjacent tables. Any additional monitoring results that a community water system chooses to include in its report must be displayed separately.

(4) The data must be derived from data collected to comply with EPA and department monitoring and analytical requirements during calendar year 1998 for the first report and subsequent calendar years thereafter, except the following:

(A) Where a system is allowed to monitor for regulated contaminants less often than once a year, the table or tables must include the date and results of the most recent sampling, and the report must include a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulations. No data older than five (5) years need be included.

(B) Results of monitoring in compliance with 40 CFR 141.142* and 40 CFR 141.143* need only be included for five (5) years from the date of the last sample or until any of the detected contaminants becomes regulated and subject to routine monitoring requirements, whichever comes first.

(5) For detected regulated contaminants listed in section 6(a) of this rule, the table or tables must contain the following information:

(A) The MCL for that contaminant expressed as a number equal to or greater than one and zero-tenths (1.0), as listed in section 6(a) of this rule.

(B) The MCLG for that contaminant expressed in the same units as the MCL.

(C) If there is no MCL for a detected contaminant, the table must indicate that there is a treatment technique, or specify the action level, applicable to that

contaminant, and the report shall include the definitions for treatment technique or action level, or both, as appropriate, specified in subsection (c)(4).

(D) For contaminants subject to an MCL, except turbidity and total coliforms, the highest contaminant level used to determine compliance with this rule and the range of detected levels as follows:

(i) When compliance with the MCL is determined annually or less frequently, the highest detected level at any sampling point and the range of detected levels expressed in the same units as the MCL.

(ii) When compliance with the MCL is determined by calculating a running annual average of all samples taken at a sampling point, the highest average of any of the sampling points and the range of all sampling points expressed in the same units as the MCL.

(iii) When compliance with the MCL is determined on a system-wide basis by calculating a running annual average of all samples at all sampling points, the average and range of detection expressed in the same units as the MCL.

(E) When turbidity is reported pursuant to 327 IAC 8-2-8.8, the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in 327 IAC 8-2-8.8 for the filtration technology being used. The report must include an explanation of the reasons for measuring turbidity.

(F) For lead and copper, the ninetieth percentile value of the most recent round of sampling and the number of sampling sites exceeding the action level.

(G) For total coliform, the highest monthly:

(i) number of positive samples for systems collecting fewer than forty (40) samples per month; or

(ii) percentage of positive samples for systems collecting at least forty (40) samples per month.

(H) For fecal coliform, the total number of positive samples.

(I) The likely source or sources of detected contaminants to the best of the operator's knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments and must be used when available to the operator. If the operator lacks specific information on the likely source, the report must include one (1) or more of the typical sources for that contaminant listed in section 6(b) of this rule that are most applicable to the system.

(6) If a community water system distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources:

(A) the table must contain a separate column for each service area, and the report must identify each separate distribution system; or

(B) the system may produce separate reports tailored to include data for each service area.

(7) The table must clearly identify any data indicating violations of MCLs or treatment techniques, and the report must contain a clear and readily understandable explanation of the violation, including the length of the violation, the potential adverse health effects, and actions taken by the system to address the violation. To describe the potential health effects, the system shall use the relevant language of section 6(c) of this rule.

(e) Each report must contain the following information on Cryptosporidium, radon, and other contaminants:

(1) If the system has performed any monitoring for Cryptosporidium, including monitoring performed to satisfy the requirements of 40 CFR 141.143*, that indicates Cryptosporidium may be present in the source water or the finished water, the

report must include:

(A) a summary of the results of the monitoring; and

(B) an explanation of the significance of the results.

(2) If the system has performed any monitoring for radon that indicates radon may be present in the finished water, the report must include:

(A) the results of the monitoring; and

(B) an explanation of the significance of the results.

(3) If the system has performed additional monitoring that indicates the presence of other contaminants in the finished water, the commissioner strongly encourages systems to report any results that may indicate a health concern. To determine if results may indicate a health concern, the commissioner recommends that systems find out if EPA has proposed a National Primary Drinking Water Regulation (NPDWR) or issued a health advisory for that contaminant by calling the Safe Drinking Water Hotline at (800) 426-4791. The commissioner and EPA consider levels detected above a proposed federal or state MCL or health advisory level to indicate possible health concerns. For such contaminants, the commissioner recommends that the report includes:

(A) the results of the monitoring; and

(B) an explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.

(f) In addition to the requirements of subsection (d)(5), the report must note any violation of a requirement listed in this subsection that occurred during the year covered by the report and include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the system has taken to correct the violation. Violations of the following requirements must be included:

(1) Monitoring and reporting of compliance data.

(2) Filtration and disinfection prescribed by 327 IAC 8-2-8.5 and 327 IAC 8-2-8.6. For systems that have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of such equipment or processes that constitutes a violation, the report must include the following language as part of the explanation of potential health effects: "Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.".

(3) Lead and copper control requirements prescribed by 327 IAC 8-2-36 through 327 IAC 8-2-47. For systems that fail to take one (1) or more actions prescribed by 327 IAC 8-2-36(d) or 327 IAC 8-2-40 through 327 IAC 8-2-43, the report must include the applicable language from section 6(c) of this rule for lead or copper, or both.

(4) Treatment techniques for acrylamide and epichlorohydrin prescribed by 327 IAC 8-2-3.5. For systems that violate 327 IAC 8-2-32, the report shall include the relevant language from section 6(c) of this rule.

(5) Record keeping of compliance data.

(6) Special monitoring requirements prescribed by 327 IAC 8-2-21.

(7) Violation of the terms of an administrative or judicial order.

(g) The following additional information must be contained in the report:

(1) A brief explanation regarding contaminants that may reasonably be expected to be found in drinking water, including bottled water. This explanation may include the language in clauses (A) through (C), or systems may use their own comparable language. The report must also include the language of clause (D). The language is as follows:

(A) The sources of drinking water (both tap water and bottled water) include riv-

ers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, and in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

(B) Contaminants that may be present in source water include the following:

(i) Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

(ii) Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater run-off, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

(iii) Pesticides and herbicides, that may come from a variety of sources, such as agriculture, urban stormwater run-off, and residential uses.

(iv) Organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater run-off, and septic systems.

(v) Radioactive contaminants, that can be naturally-occurring or be the result of oil and gas production and mining activities.

(C) In order to ensure that tap water is safe to drink, the department and EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Federal Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

(D) Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791.

(2) The telephone number of the owner, operator, or designee of the community water system as a source of additional information concerning the report.

(3) In communities with a large proportion of non-English speaking residents, in which twenty percent (20%) or more of the residents speak the same language other than English, the report must contain information in the appropriate language or languages regarding the importance of the report or contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language.

(4) The report must include information about opportunities for public participation in decisions that may affect the quality of water. This information may include, but is not limited to, the time and place of regularly scheduled board meetings.

(5) The systems may include such additional information as they deem necessary for public education consistent with, and not detracting from, the purpose of the report.

*The Code of Federal Regulations (CFR) citations are incorporated by reference into this rule and are available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, Twelfth Floor, Room 1255, 100 North Senate Avenue, Indianapolis, Indiana 46206.

[As added at: 24 IR 3982.]

327 IAC 8-2.1-4 ----- Consumer confidence reports: required additional health information

(a) A report must prominently display the language: "Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. U.S. Environmental Protection Agency and Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.".

(b) If a system detects arsenic at levels above twenty-five (25) micrograms per liter, but below the MCL, it shall do one (1) of the following:

(1) Include in its report the language: "The U.S. Environmental Protection Agency is reviewing the drinking water standard for arsenic because of special concerns that it may not be stringent enough. Arsenic is a naturally-occurring mineral known to cause cancer in humans at high concentrations.".

(2) Write its own educational statement, if such statement is written in consultation with the commissioner, and include that statement in the report.

(c) If a system detects nitrate at levels above five (5) milligrams per liter, but below the MCL, it shall do one (1) of the following:

(1) Include in its report the language: "Nitrate in drinking water at levels above ten (10) parts per million is a health risk for infants of less than six (6) months of age. High nitrate levels in drinking water can cause blue-baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, seek advice from your health care provider.".

(2) Write its own educational statement, if such statement is written in consultation with the commissioner, and include that statement in the report.

(d) If a system detects lead above the action level in more than five percent (5%), and up to and including ten percent (10%), of homes sampled, it shall do one (1) of the following:

(1) Include in its report the language: "Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for thirty (30) seconds to two (2) minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline at (800) 426-4791.".

(2) Write its own educational statement, if such statement is written in consultation with the commissioner, and include that statement in the report.

(e) If a system detects total trihalomethanes above eight-hundredths (0.08) milligrams per liter, but below the MCL in 327 IAC 8-2-5(a), as an annual average, monitored and calculated under the provisions of 327 IAC 8-2-5.3, it shall include in its report the health effects language in section 6(c)(5)(S) of this rule.

[As added at: 23 IR 1902.]

327 IAC 8-2.1-5 ----- Consumer confidence reports: report delivery; record keeping

(a) A community water system shall mail or otherwise directly deliver one (1) copy of the consumer confidence report to each customer.

(b) The system shall make a good faith effort to inform consumers who do not get water bills, using means recommended by the commissioner. The commissioner expects that an adequate good faith effort will be tailored to the consumers who are served by the system,

but are not bill-paying customers, such as renters or workers. A good faith effort to inform consumers may include, but is not limited to, methods appropriate to the particular system, including any of the following:

(1) Posting the reports on the Internet.

(2) Mailing to postal patrons in metropolitan areas.

(3) Advertising the availability of the report in the news media.

(4) Publication in a local newspaper.

(5) Posting in public places such as cafeterias or lunch rooms of public buildings.

(6) Delivery of multiple copies for distribution by single-biller customers, such as apartment buildings or large private employers.

(7) Delivery to community organizations.

(c) No later than the date the system is required to distribute the report to its customers, a community water system shall mail a copy of the report to the department, followed within three (3) months by a certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the commissioner.

(d) No later than the date the system is required to distribute the report to its customers, a community water system shall deliver the report to any other agency or clearinghouse identified by the commissioner, including the county health department or departments serving the county or counties where the system's distribution system is located.

(e) A community water system shall make its reports available to the public upon request.

(f) A community water system serving one hundred thousand (100,000) or more persons shall post its current year's report to a publicly-accessible site on the Internet.

(g) A community water system shall retain copies of its consumer confidence report for no less than five (5) years.

[As added at: 23 IR 1903.]

327 IAC 8-2.1-6 ----- Consumer confidence reports: other required information

(a) In order to convert MCLs to numbers greater than or equal to one and zero-tenths (1.0) for the required table referenced in section 3 of this rule, a community water system shall use the following table:

Table 6-1: Converting MCL Compliance Values for Consumer Confidence Reports				
Contaminant	MCL in Compliance Units (mg/l)	multiply by...	MCL in CCR Units	MCLG in CCR Units
Microbiological contaminants				
1. Total coliform bacteria			5% of monthly samples are positive (systems that collect forty (40) or more samples per month); one (1) positive monthly sample (systems that collect fewer than forty (40) samples per month).	0
2. Fecal coliform and E. coli			A routine sample and a repeat sample are total coliform positive, and one (1) is also fecal coliform or E. coli positive.	0
3. Turbidity			TT (NTU)	n/a
Radioactive contaminants				
4. Beta/photon emitters	4 mrem/year		4 mrem/year	0
5. Alpha emitters	15 pCi/l		15 pCi/l	0
6. Combined radium	5 pCi/l		5 pCi/l	0
Inorganic contaminants				
7. Antimony	0.006	1,000	6 ppb	6
8. Arsenic	0.05	1,000	50 ppb	n/a
9. Asbestos	7 MFL		7 MFL	7
10. Barium	2		2 ppm	2
11. Beryllium	0.004	1,000	4 ppb	4
12. Cadmium	0.005	1,000	5 ppb	5
13. Chromium	0.1	1,000	100 ppb	100
14. Copper	AL = 1.3		AL = 1.3 ppm	1.3
15. Cyanide	0.2	1,000	200 ppb	200
16. Fluoride	4		4 ppm	4
17. Lead	AL = 0.015	1,000	AL = 15 ppb	0
18. Mercury (inorganic)	0.002	1,000	2 ppb	2
19. Nitrate (as nitrogen)	10		10 ppm	10
20. Nitrite (as nitrogen)	1		1 ppm	1
21. Selenium	0.05	1,000	50 ppb	50
22. Thallium	0.002	1,000	2 ppb	0.5
Synthetic organic contaminants including pesticides and herbicides				
23. 2,4-D	0.07	1,000	70 ppb	70
24. 2,4,5-TP (silvex)	0.05	1,000	50 ppb	50
25. Acrylamide			TT	0
26. Alachlor	0.002	1,000	2 ppb	0
27. Atrazine	0.003	1,000	3 ppb	3
28. Benzo(a)pyrene (PAH)	0.0002	1,000,000	200 ppt	0
29. Carbofuran	0.04	1,000	40 ppb	40
30. Chlordane	0.002	1,000	2 ppb	0
31. Dalapon	0.2	1,000	200 ppb	200

32. Di(2-ethylhexyl)adipate	4	1,000	400 ppb	400
33. Di(2-ethylhexyl)phthalate	0.006	1,000	6 ppb	0
34. Dibromochloropropane	0.0002	1,000,000	200 ppt	0
35. Dinoseb	0.007	1,000	7 ppb	7
36. Diquat	0.02	1,000	20 ppb	20
37. Dioxin (2,3,7,8-TCDD)	0.00000003	1,000,000,000	30 ppq	0
38. Endothall	0.1	1,000	100 ppb	100
39. Endrin	0.002	1,000	2 ppb	2
40. Epichlorohydrin			TT	0
41. Ethylene dibromide	0.00005	1,000,000	50 ppt	0
42. Glyphosate	0.7	1,000	700 ppb	700
43. Heptachlor	0.0004	1,000,000	400 ppt	0
44. Heptachlor epoxide	0.0002	1,000,000	200 ppt	0
45. Hexachlorobenzene	0.001	1,000	1 ppb	0
46. Hexachlorocyclopentadiene	0.05	1,000	50 ppb	50
47. Lindane	0.0002	1,000	200 ppt	200
48. Methoxychlor	0.04	1,000	40 ppb	40
49. Oxamyl(vydate)	0.2	1,000	200 ppb	200
50. PCBs (polychlorinated biphenyls)	0.0005	1,000,000	500 ppt	0
51. Pentachlorophenol	0.001	1,000	1 ppb	0
52. Picloram	0.5	1,000	500 ppb	500
53. Simazine	0.004	1,000	4 ppb	4
54. Toxaphene	0.003	1,000	3 ppb	0
Volatile organic contaminants				
55. Benzene	0.005	1,000	5 ppb	0
56. Carbon tetrachloride	0.005	1,000	5 ppb	0
57. Chlorobenzene	0.1	1,000	100 ppb	100
58. o-Dichlorobenzene	0.6	1,000	600 ppb	600
59. p-Dichlorobenzene	0.075	1,000	75 ppb	75
60. 1,2-Dichloroethane	0.005	1,000	5 ppb	0
61. 1,1-Dichloroethylene	0.007	1,000	7 ppb	7
62. cis-1,2-Dichloroethylene	0.07	1,000	70 ppb	70
63. trans-1,2-Dichloroethylene	0.1	1,000	100 ppb	100
64. Dichloromethane	0.005	1,000	5 ppb	0
65. 1,2-Dichloropropane	0.005	1,000	5 ppb	0
66. Ethylbenzene	0.7	1,000	700 ppb	700
67. Styrene	0.1	1,000	100 ppb	100
68. Tetrachloroethylene	0.005	1,000	5 ppb	0
69. 1,2,4-Trichlorobenzene	0.07	1,000	70 ppb	70
70. 1,1,1-Trichloroethane	0.2	1,000	200 ppb	200
71. 1,1,2-Trichloroethane	0.005	1,000	5 ppb	3
72. Trichloroethylene	0.005	1,000	5 ppb	0

73. TTHMs (total trihalomethanes)	0.1	1,000	100 ppb	n/a
74. Toluene	1		1 ppm	1
75. Vinyl chloride	0.002	1,000	2 ppb	0
76. Xylenes	10		10 ppm	10

Key:

AL = Action level.

MCL = Maximum contaminant level.

MCLG = Maximum contaminant level goal.

MFL = Million fibers per liter.

mrem/year = Millirems per year (a measure of radiation absorbed by the body).

NTU = Nephelometric turbidity units.

pCi/l = Picocuries per liter (a measure of radioactivity).

ppm = Parts per million, or milligrams per liter (mg/l).

ppb = Parts per billion, or micrograms per liter (µg/l).

ppt = Parts per trillion, or nanograms per liter (ng/l).

ppq = Parts per quadrillion, or picograms per liter (pg/l).

TT = Treatment technique.

(b) In order to show potential sources of contamination for the table required by section 3 of this rule, a community water system shall use the following table:

Table 6-2: Regulated Contaminants

Contaminant (unit)	MCLG	MCL	Major Sources in Drinking Water
Microbiological contaminants			
1. Total coliform bacteria	0	5% of monthly samples are positive (systems that collect forty (40) or more samples per month); one (1) positive monthly sample (systems that collect fewer than forty (40) samples per month).	Naturally present in the environment.
2. Fecal coliform and E. coli	0	A routine sample and a repeat sample are total coliform positive, and one (1) is also fecal coliform or E. coli positive.	Human and animal fecal waste.
3. Turbidity	n/a	TT	Soil run-off.
Radioactive contaminants			
4. Beta/photon emitters (mrem/year)	0	4	Decay of natural and manmade deposits.
5. Alpha emitters (pCi/l)	0	15	Erosion of natural deposits.
6. Combined radium (pCi/l)	0	5	Erosion of natural deposits.
Inorganic contaminants			
7. Antimony (ppb)	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder.
8. Arsenic (ppb)	n/a	50	Erosion of natural deposits; run-off from orchards; run-off from glass and electronics production wastes.
9. Asbestos (MFL)	7	7	Decay of asbestos cement water mains; erosion of natural deposits.

10. Barium (ppm)	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
11. Beryllium (ppb)	4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries.
12. Cadmium (ppb)	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; run-off from waste batteries and paints.
13. Chromium (ppb)	100	100	Discharge from steel and pulp mills; erosion of natural deposits.
14. Copper (ppm)	1.3	AL= 1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
15. Cyanide (ppb)	200	200	Discharge from steel/metal factories; discharge from plastic and fertilizer factories.
16. Fluoride (ppm)	4	4	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.
17. Lead (ppb)	0	AL = 15	Corrosion of household plumbing systems; erosion of natural deposits.
18. Mercury (inorganic) (ppb)	2	2	Erosion of natural deposits; discharge from refineries and factories; run-off from landfills; run-off from cropland.
19. Nitrate (as nitrogen) (ppm)	10	10	Run-off from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
20. Nitrite (as nitrogen) (ppm)	1	1	Run-off from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
21. Selenium (ppb)	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
22. Thallium (ppb)	0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories.
Synthetic organic contaminants, including pesticides and herbicides			
23. 2,4-D (ppb)	70	70	Run-off from herbicide used on row crops.
24. 2,4,5-TP (Silvex) (ppb)	50	50	Residue of banned herbicide.
25. Acrylamide	0	TT	Added to water during sewage/wastewater treatment.
26. Alachlor (ppb)	0	2	Run-off from herbicide used on row crops.
27. Atrazine (ppb)	3	3	Run-off from herbicide used on row crops.
28. Benzo(a)pyrene (PAH) (ppt)	0	200	Leaching from linings of water storage tanks and distribution lines.
29. Carbofuran (ppb)	40	40	Leaching of soil fumigant used on rice and alfalfa.
30. Chlordane (ppb)	0	2	Residue of banned termiticide.
31. Dalapon (ppb)	200	200	Run-off from herbicide used on rights-of-way.

32. Di(2-ethylhexyl)adipate (ppb)	400	400	Discharge from chemical factories.
33. Di(2-ethylhexyl)phthalate (ppb)	0	6	Discharge from rubber and chemical factories.
34. Dibromochloropropane (ppt)	0	200	Run-off/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards.
35. Dinoseb (ppb)	7	7	Run-off from herbicide used on soybeans and vegetables.
36. Diquat (ppb)	20	20	Run-off from herbicide use.
37. Dioxin (2,3,7,8-TCDD) (ppq)	0	30	Emissions from waste incineration and other combustion; discharge from chemical factories.
38. Endothall (ppb)	100	100	Run-off from herbicide use.
39. Endrin (ppb)	2	2	Residue of banned insecticide.
40. Epichlorohydrin	0	TT	Discharge from industrial chemical factories; an impurity of some water treatment chemicals.
41. Ethylene dibromide (ppt)	0	50	Discharge from petroleum refineries.
42. Glyphosate (ppb)	700	700	Run-off from herbicide use.
43. Heptachlor (ppt)	0	400	Residue of banned termiticide.
44. Heptachlor epoxide (ppt)	0	200	Breakdown of heptachlor.
45. Hexachlorobenzene (ppb)	0	1	Discharge from metal refineries and agricultural chemical factories.
46. Hexachlorocyclopentadiene (ppb)	50	50	Discharge from chemical factories.
47. Lindane (ppt)	200	200	Run-off/leaching from insecticide used on cattle, lumber, gardens.
48. Methoxychlor (ppb)	40	40	Run-off/leaching from insecticide used on fruits, vegetables, alfalfa, livestock.
49. Oxamyl (vydate) (ppb)	200	200	Run-off/leaching from insecticide used on apples, potatoes, and tomatoes.
50. PCBs (polychlorinated biphenyls) (ppt)	0	500	Run-off from landfills; discharge of waste chemicals.
51. Pentachlorophenol (ppb)	0	1	Discharge from wood preserving factories.
52. Picloram (ppb)	500	500	Herbicide run-off.
53. Simazine (ppb)	4	4	Herbicide run-off.
54. Toxaphene (ppb)	0	3	Run-off/leaching from insecticide used on cotton and cattle.
Volatile organic contaminants			
55. Benzene (ppb)	0	5	Discharge from factories; leaching from gas storage tanks and landfills.
56. Carbon tetrachloride (ppb)	0	5	Discharge from chemical plants and other industrial activities.
57. Chlorobenzene (ppb)	100	100	Discharge from chemical and agricultural chemical factories.
58. o-Dichlorobenzene (ppb)	600	600	Discharge from industrial chemical factories.
59. p-Dichlorobenzene (ppb)	75	75	Discharge from industrial chemical factories.
60. 1,2-Dichloroethane (ppb)	0	5	Discharge from industrial chemical factories.
61. 1,1-Dichloroethylene (ppb)	7	7	Discharge from industrial chemical factories.
62. cis-1,2-Dichloroethylene (ppb)	70	70	Discharge from industrial chemical factories.

63. trans-1,2-Dichloroethylene (ppb)	100	100	Discharge from industrial chemical factories.
64. Dichloromethane (ppb)	0	5	Discharge from pharmaceutical and chemical factories.
65. 1,2-Dichloropropane (ppb)	0	5	Discharge from industrial chemical factories.
66. Ethylbenzene (ppb)	700	700	Discharge from petroleum refineries.
67. Styrene (ppb)	100	100	Discharge from rubber and plastic factories; leaching from landfills.
68. Tetrachloroethylene (ppb)	0	5	Discharge from factories and dry cleaners.
69. 1,2,4-Trichlorobenzene (ppb)	70	70	Discharge from textile-finishing factories.
70. 1,1,1-Trichloroethane (ppb)	200	200	Discharge from metal degreasing sites and other factories.
71. 1,1,2-Trichloroethane (ppb)	3	5	Discharge from industrial chemical factories.
72. Trichloroethylene (ppb)	0	5	Discharge from metal degreasing sites and other factories.
73. TTHMs (total trihalomethanes) (ppb)	n/a	100	Byproduct of drinking water chlorination.
74. Toluene (ppm)	1	1	Discharge from petroleum factories.
75. Vinyl chloride (ppb)	0	2	Leaching from PVC piping; discharge from plastics factories.
76. Xylenes (ppm)	10	10	Discharge from petroleum factories; discharge from chemical factories.

Key:

AL = Action level.

MCL = Maximum contaminant level.

MCLG = Maximum contaminant level goal.

MFL = Million fibers per liter.

mrem/year = millirems per year (a measure of radiation absorbed by the body).

NTU = Nephelometric turbidity units.

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ppm = Parts per million, or milligrams per liter (mg/l).

ppb = Parts per billion, or micrograms per liter (µg/l).

ppt = Parts per trillion, or nanograms per liter (ng/l).

ppq = Parts per quadrillion, or picograms per liter (pg/l).

TT = Treatment technique.

(c) The following language shall be used if there is a violation referenced in section 3 of this rule and health effects language is required:

(1) For microbiological contaminants, the following language shall be used:

(A) Total coliform. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present. Coliforms were found in more samples than allowed, and this was a warning of potential problems.

(B) Fecal coliform/E. coli. Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with animal or human wastes. Microbes in these wastes can cause short term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.

(C) Turbidity. Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

(2) For radioactive contaminants, the following language shall be used:

(A) Beta/photon emitters. Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.

(B) Alpha emitters. Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

(C) Combined radium 226/228. Some people who drink water containing radium 226 or 228 in excess of the MCL over many years have an increased risk of getting cancer.

(3) For inorganic contaminants, the following language shall be used:

(A) Antimony. Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.

(B) Arsenic. Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system and may have an increased risk of getting cancer.

(C) Asbestos. Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.

(D) Barium. Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.

(E) Beryllium. Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.

(F) Cadmium. Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.

(G) Chromium. Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.

(H) Copper. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer

liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

(I) Cyanide. Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.

(J) Fluoride. Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.

(K) Lead. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

(L) Mercury (inorganic). Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.

(M) Nitrate. Infants below the age of six (6) months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

(N) Nitrite. Infants below the age of six (6) months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

(O) Selenium. Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail loss, numbness in fingers or toes, and problems with their circulation.

(P) Thallium. Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.

(4) For synthetic organic contaminants, including pesticides and herbicides, the following language shall be used:

(A) 2,4-D. Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.

(B) 2,4,5-TP (silvex). Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.

(C) Acrylamide. Some people who drink water containing a high level of acrylamide over a long period of time could have problems with their nervous system or blood and may have an increased risk of getting cancer.

(D) Alachlor. Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.

(E) Atrazine. Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.

(F) Benzo(a)pyrene (PAH). Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.

(G) Carbofuran. Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood or nervous or reproductive systems.

(H) Chlordane. Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system and may have an increased risk of getting cancer.

(I) Dalapon. Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.

(J) Di(2-ethylhexyl)adipate. Some people who drink water containing di(2-ethylhexyl)adipate well in excess of the MCL over many years could experience general toxic effects or reproductive difficulties.

(K) Di(2-ethylhexyl)phthalate. Some people who drink water containing di(2-ethylhexyl)phthalate in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.

(L) Dibromochloropropane (DBCP). Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.

(M) Dinoseb. Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.

(N) Dioxin (2,3,7,8-TCDD). Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.

(O) Diquat. Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.

(P) Endothall. Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.

(Q) Endrin. Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.

(R) Epichlorohydrin. Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems and may have an increased risk of getting cancer.

(S) Ethylene dibromide. Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys and may have an increased risk of getting cancer.

(T) Glyphosate. Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.

(U) Heptachlor. Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.

(V) Heptachlor epoxide. Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.

(W) Hexachlorobenzene. Some people who drink water containing hexachlorobenzene in excess of the MCL over many years may experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.

(X) Hexachlorocyclopentadiene. Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.

(Y) Lindane. Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.

(Z) Methoxychlor. Some people who drink water containing methoxychlor in ex-

cess of the MCL over many years could experience reproductive difficulties.

(AA) Oxamyl (vydate). Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.

(BB) PCBs (polychlorinated biphenyls). Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties and may have an increased risk of getting cancer.

(CC) Pentachlorophenol. Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys and may have an increased risk of getting cancer.

(DD) Picloram. Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.

(EE) Simazine. Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.

(FF) Toxaphene. Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid and may have an increased risk of getting cancer.

(5) For volatile organic contaminants, the following language shall be used:

(A) Benzene. Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets and may have an increased risk of getting cancer.

(B) Carbon tetrachloride. Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.

(C) Chlorobenzene. Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.

(D) o-Dichlorobenzene. Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.

(E) p-Dichlorobenzene. Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.

(F) 1,2-Dichloroethane. Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years have an increased risk of getting cancer.

(G) 1,1-Dichloroethylene. Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.

(H) cis-1,2-Dichloroethylene. Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.

(I) trans-1,2-Dichloroethylene. Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.

(J) Dichloromethane. Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.

(K) 1,2-Dichloropropane. Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increase

risk of getting cancer.

(L) Ethylbenzene. Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.

(M) Styrene. Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.

(N) Tetrachloroethylene. Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver and may have an increased risk of getting cancer.

(O) 1,2,4-Trichlorobenzene. Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.

(P) 1,1,1-Trichloroethane. Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.

(Q) 1,1,2-Trichloroethane. Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.

(R) Trichloroethylene. Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.

(S) Total trihalomethanes (TTHMs). Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems and may have an increased risk of getting cancer.

(T) Toluene. Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.

(U) Vinyl chloride. Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.

(V) Xylenes. Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.

[As added at: 23 IR 1903.]

RULE 3. PUBLIC WATER SUPPLY CONSTRUCTION PERMITS

327 IAC 8-3-1 ------- Public water supply construction permits: definitions

Sec. 1. In addition to the definitions contained in IC 13-11-2 and 327 IAC 1, the following definitions apply throughout this rule:

(1) "Connection ban" means an order imposed by the commissioner in accordance with section 4.2 of this rule.

(2) "Distribution system" means the piping, storage structures, pumps, and controls used to deliver water to the public.

(3) "Early warning order" means an order imposed by the commissioner in accordance with section 4.2 of this rule.

(4) "Experimental permit" means a construction permit issued for an installation, treatment process, or technique for which extensive experience and records of use have not been accumulated to meet the Safe Drinking Water Act requirements.

(5) "Normal operating pressure" means the water main pressure maintained regardless of public service load in the absence of extenuating circumstances.

(6) "Operator" means the person in direct or responsible charge and supervising the operation of a wastewater or water treatment plant or a water distribution system.

(7) "Peak operating flowrate" means the flowrate equal to maximum achievable capacity of the public water system.

(8) "Professional engineer" means a person who is registered as a professional engineer by the Indiana state board of registration for professional engineers under IC 25-31.

(9) "Public water system" means a public water supply for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen (15) service connections or regularly serves at least twenty-five (25) individuals daily at least sixty (60) days out of the year. The term includes any collection, treatment, storage, and distribution facilities under control of the operator of such system, and used primarily in connection with such system and any collection or pretreatment storage facilities not under such control that are used primarily in connection with such system.

(10) "Satisfactory quality" means the physical, chemical, and bacteriological quality of drinking water meeting the requirements set forth in this article.

(11) "Two (2) year average peak" means the arithmetic mean of the highest five (5) daily pumpages as reported over the previous two (2) year period on the public water system's monthly report of operations on record with the department. If the public water system is less than two (2) years old, the term means the arithmetic mean of the highest five (5) daily pumpages as reported on the public water system's monthly report of operations on record with the department.

(12) "Water main" means any pipe located between all entry points to the distribution system and all customer service connection meters.

[As amended at: 23 IR 1626.]

327 IAC 8-3-1.1 ----- Public water supply construction permits: proof of capacity

(a) A new community public water supply system and a new nontransient noncommunity public water supply system that will commence operation after October 1, 1999, must fulfill the requirements of 327 IAC 8-3.6 prior to making a submission to the commissioner for a permit to construct as described in sections 2 and 3 of this rule.

(b) The commissioner shall deny and return to the applicant a construction permit application, plans, or specifications that are submitted for review without the proof of public water supply system technical, financial, and managerial capacity as required by 327 IAC 8-3.6.

[As added at: 22 IR 3678.]

327 IAC 8-3-2 ------- Public water supply construction permits: exemptions, experimental construction permits, emergency construction permits, after-the-fact construction permits

(a) No person shall cause or allow the construction, installation, or modification of any facility, equipment, or device for any public water system without having a valid construction permit issued by the commissioner, except for replacement of equipment of similar design and capacity, none of which will change adversely the plant operation, its hydraulic design or waste products, or the distribution system design, operation, or capacity.

(b) After the commissioner has granted a construction permit, no changes in the application, plans, or specifications shall be made other than changes involving the replacement of equipment of similar design and capacity, none of which will change adversely the plant operation, its hydraulic design or waste products, or the distribution system design, operation, or capacity without first submitting in writing to the commissioner a detailed statement of such proposed changes and receiving an amended construction permit from the commissioner. Construction permits shall become void if the construction is not started within one (1) year from the date of issuance of the permit unless the duration of the permit

has been extended by the commissioner after receiving a written request from the permittee, prior to the expiration of the permit, requesting such extension with no other changes to the permit, application, plans, or specifications as approved by the commissioner.

(c) The commissioner shall have the authority to specify in the permit any limits and conditions necessary to meet the issuance requirements of section 4 of this rule.

(d) The commissioner may revoke any construction permit for noncompliance with the limits and conditions specified in the permit, or if significant and unapproved changes are made in construction that differ from the application, plans, and specifications on which the issuance of the permit was based.

(e) The commissioner may issue construction permits for public water system facilities, equipment, or devices that are to be installed or constructed in stages. These construction permits may allow site preparation or foundation construction to begin where the following conditions have been met:

(1) Plans and specifications for additional facilities, equipment, or devices that will be used in the treatment, pumping, withdrawal, or conveyance of water for public consumption must be approved by the commissioner prior to the construction of said facilities, equipment, or devices in accordance with this section.

(2) Public water system facilities, equipment, or devices that are not used for the treatment, pumping, withdrawal, or conveyance of water for public consumption must conform to the requirements of the "Recommended Standards for Water Works" established by the Great Lakes—Upper Mississippi River Board of State Public Health and Environmental Managers, and the American Water Works Association (AWWA) standards.

(f) In order to encourage the development of new or more efficient treatment processes, the following type of construction permits may be issued:

(1) Experimental construction permits may be issued by the commissioner for installations, treatment processes, or techniques that have not developed extensive experience or records of use in the state of Indiana, provided that the applicant submits evidence that the installation, process, or technique will produce drinking water of satisfactory quality and normal operating pressure at the peak operating flowrate in accordance with this article.

(2) Regular construction permits may be issued for installations, treatment processes, or techniques that have been used for sufficient time to show that the installation, treatment process, or technique will produce drinking water of satisfactory quality and normal operating pressure at the peak operating flowrate in accordance with this article.

(g) For an emergency condition, as a result of a drought, storm, flood, or other natural or manmade disaster, the commissioner may issue an emergency construction permit.

(h) An after-the-fact construction permit must be obtained from the commissioner upon notification to the public water system by the commissioner of completed or progressing construction, installation, or modification of any facility, equipment, or device for any public water system lacking a valid construction permit issued from the department, except where replacement of equipment of similar design and capacity will not change adversely the plant operation, its hydraulic design or waste products, or the distribution system design, operation, or capacity. The following additional conditions apply to after-the-fact construction permits:

(1) The commissioner may order that no additional construction may commence or continue progress until the after-the-fact construction permit has been obtained.

(2) As-built plans and specifications certified by a professional engineer registered in Indiana, covering all work performed without a valid construction permit issued by the commissioner must be submitted to the commissioner within one hundred twenty (120) days of notification to the public water system by the commissioner.

(3) Modifications as required by the commissioner after review of the as-built plans

and specifications shall be made within the time limits specified by the commissioner.

(4) The commissioner may require interim measures taken during review of an after-the-fact construction permit, including boil orders to ensure safe drinking water of satisfactory quality and normal operating pressure at the peak operating flowrate in accordance with this article.

(5) An after-the-fact construction permit does not relieve a public water system or any other person of any liability for construction without a valid permit from the commissioner.

[As amended at: 22 IR 2494.]

327 IAC 8-3-3 ------- Public water supply construction permits: application for permits

(a) A properly executed application form shall accompany the plans and specifications submitted to the commissioner for the purposes of obtaining a permit. Application forms may be obtained from the commissioner upon request or computergenerated if the computer-generated form is similar in appearance and identical in content to the form generated by the commissioner. A properly executed application form shall include the following:

(1) Name, address, identification number, and telephone number of the public water system.

(2) Name, address, and telephone number of the engineering firm and the developing firm.

(3) Name, address, and title of the person who is to receive the permit (generally the person representing the funding entity of the construction project).

(4) Location, brief description, and source of funding for the construction project.

(5) A list and corresponding mailing labels of all potentially affected parties as defined by IC 4-21.5-3-5(b).

(6) A dated signature certifying that, to the best of the public water system's knowledge, all potentially affected parties, as defined by IC 4-21.5-3-5(b), have been listed.

(b) The applications, plans, and specifications along with any reports and other information shall be submitted using a format and meeting content requirements approved by the commissioner.

(c) All plans, specifications, and applications must be prepared by or under the direct supervision of a professional engineer registered in Indiana and shall bear the seal and certification of the professional engineer certifying that construction of the proposed project following the application, plans, and specifications will produce drinking water of satisfactory quality and normal operating pressure at the peak operating flowrate in accordance with this article.

(d) A proposed construction project that is the subject of an application for a construction permit must be entirely independently based on existing public water system facilities or proposed construction projects with effective construction permits, issued by the commissioner, that are not the subject of the application.

(e) The commissioner may require additional information, within the context of a permit application, to determine whether the proposed facility will meet the issuance requirements of section 4 of this rule.

(f) Whenever the commissioner requires information, within the context of a permit application, regarding existing water supply facilities or water treatment works, or regarding the operation and maintenance thereof, this information shall be submitted to the commissioner within thirty (30) days of such request.

(g) A public water system proposing to install or construct facilities, equipment, or devices under a staged permitting process must submit the following along with the initial

permit application as allowed under section 2(e) of this rule:

(1) A proposed schedule for the construction of the entire project.

(2) A proposed schedule for the application or applications for the remainder of the staged parts of the total construction project.

[As amended at: 22 IR 2496.]

327 IAC 8-3-4 ------- Public water supply construction permits: issuance requirements

The commissioner may deny the application for any permit required by this rule unless the applicant submits evidence that the following issuance requirements are met:

(1) The facility is designed to be constructed, modified, or installed, and operated in such a manner that it will not violate any of the sanitary or health regulations or requirements existing at the time of application for the permit.

(2) The facility conforms to the design criteria in the "Recommended Standards for Water Works" established by the Great Lakes—Upper Mississippi River Board of State Public Health and Environmental Managers, the American Water Works Association (AWWA) standards, or is based on such criteria acceptable to the commissioner which the applicant shows will produce drinking water of satisfactory quality and normal operating pressure at the peak operating flowrate in accordance with this article.

(3) The facility will conform to any additional requirements specified by the commissioner to produce consistently satisfactory results.

(4) The plans for wastewater disposal meet the requirements of the commissioner.

(5) All additional substantiating information requested by the commissioner has been submitted.

[As amended at: 22 IR 2496.]

327 IAC 8-3-4.2 ----- Public water supply construction permits: water main extension early warning order and connection ban

(a) For use in this section, the public water system's capacity shall be calculated by the methods outlined in 327 IAC 8-3.3.

(b) The commissioner may issue an early warning order to a public water system if the public water system's highest daily pumpage, as reported over the previous two (2) year period, on the public water system's monthly report of operations, on record with the department, exceeds ninety percent (90%) of the public water system's capacity.

(c) An early warning order shall require the public water system to submit one (1) of the following within one hundred twenty (120) days of the date of an early warning order:

(1) A report regarding the public water system's:

(A) technical, managerial, and financial capacity demonstrating that the public water system can maintain normal operations and remain viable; and

(B) anticipated capacity utilization plans covering, in the minimum, the upcoming twenty-four (24) months.

(2) A report regarding the public water system's proposed plans covering, in the minimum, the upcoming twenty-four (24) months to increase the capacity of the public water system or to decrease the customer demand.

(3) A report demonstrating that the public water system's current two (2) year average peak does not exceed ninety percent (90%) of the public water system's capacity.

(d) The commissioner may impose a connection ban under circumstances where:

(1) one hundred twenty (120) calender days have passed since the issuance date of the early warning order;

(2) the public water system's current two (2) year average peak exceeds ninety percent (90%) of the public water system's capacity; and

(3) one (1) of the following has occurred:

(A) The public water system has not complied with subsection (c).

(B) The public water system has failed to demonstrate that the public water system's technical, managerial, and financial capacity can maintain normal operations and remain viable.

(C) The public water system has failed to implement the public water system's proposed twenty-four (24) month plan to increase the capacity of the public water system or decrease the customer demand.

(e) The connection ban imposed by the commissioner shall prohibit the connection of additional water main extensions to the public water system.

(f) The commissioner shall give written notification to the public water system, by certified mail with return receipt requested, of the decision to impose an early warning order or a connection ban.

(g) The commissioner may terminate an early warning order or a connection ban only after the commissioner has approved one (1) of the following:

(1) A report submitted pursuant to subsection (c).

(2) A report demonstrating that the public water system's current two (2) year average peak does not exceed ninety percent (90%) of the public water system's capacity.

(h) A project with a valid construction permit, issued by the commissioner, with an effective date preceding a connection ban issued by the commissioner, is exempt from the connection ban.

(i) An emergency construction permit, as described in section 2(f) of this rule, may be issued by the commissioner to a public water system with a connection ban.

(j) A public water system aggrieved by the imposition of an early warning order, a connection ban, or a denial to terminate an early warning order or a connection ban may appeal the decision of the commissioner at a hearing held in accordance with IC 421.5.

[As added at: 22 IR 2497.]

327 IAC 8-3-5 ------- Public water supply construction permits: modification or revocation of permits

Permits shall be modified or revoked pursuant to the provision of IC 13-7-10-5.

327 IAC 8-3-5.5 ----- Public water supply construction permits: duration of the commissioner's review of an application, plans, and specifications

(a) The commissioner must approve or deny a construction permit application:

(1) for water treatment facilities within a total of one hundred twenty (120) days; or

(2) for all other proposed construction to a public water system within a total of sixty (60) days.

(b) The total of days, as specified in subsection (a), shall include all calendar days from the commissioner's date-stamped receipt of the application, plans, specifications, and, if required, fee, excluding the calendar days between the following activities:

(1) A commissioner's written notification to the applicant that the application, plans, and specifications do not fulfill the requirements of section 4 of this rule or are incomplete, inaccurate, or indicate the proposed construction will not produce drinking water of satisfactory quality and normal operating pressure at the peak operating flowrate in accordance with this article.

(2) The commissioner's date-stamped receipt of the applicant's submittal of additional information subsequent to the commissioner's notification, as described in subdivision (1) to demonstrate that the application, plans, and specifications fulfill the requirements of section 4 of this rule and are complete, are accurate, and indicate the proposed construction will produce drinking water of satisfactory quality and

normal operating pressure at the peak operating flowrate in accordance with this article.

(c) The commissioner's failure to comply with this section is subject to IC 13-15-4-11.

[As added at: 22 IR 2497.]

327 IAC 8-3-5.7 ----- Public water supply construction permits: notification of construction

The permittee must notify the commissioner a minimum of ten (10) days, excluding Saturdays, Sundays, and state of Indiana holidays, before exercising a permit issued by the commissioner in accordance with this rule. The notification must include the following information:

(1) The construction permit number assigned by the commissioner.

(2) The location of the construction.

(3) A description of the construction.

(4) Anticipated duration of the construction.

(5) The phone number of the permittee or permittee's representative who will be present during the construction.

[As added at: 22 IR 2498.]

327 IAC 8-3-6 ------- Public water supply construction permits: permit no defense to violations

The possession of any permit authorized by this rule (327 IAC 8-3) shall not be construed to authorize the holder of the permit to violate any law of the state of Indiana or rule.

327 IAC 8-3-7 ------- Public water supply construction permits: fees

(a) The following governmental entities shall be excluded from payment of fee as described in subsection (b):

(1) County, municipality, or township that is defined as a unit under IC 36-1-2-23.

(2) A nonprofit organization.

(3) A conservancy district.

(4) A school corporation.

(5) A regional water or sewage district.

(b) The following fee schedule has been established to defer administrative costs, pursuant to IC 13-16-1-2:

TYPE	PROCESSING FEE
New public water supply treatment plant:	
Ground water:	
Up to 500,000 gallons per day	$875
Greater than 500,000 gallons per day	$1,750
Surface water:	
Up to 500,000 gallons per day	$1,250
Greater than 500,000 gallons per day	$2,500
Public water supply treatment plant expansion:	
Up to fifty percent (50%) design capacity:	
Greater than 500,000 gallons per day	$1,250
Up to 500,000 gallons per day	$625
Greater than fifty percent (50%) design capacity:	
Greater than 500,000 gallons per day	$2,500

Up to 500,000 gallons per day	$1,250
Other water treatment facilities:	
Wells	$500
Pump or pump station	$100
Chemical addition	$250
Storage tank	$200
Miscellaneous process modification	$50 per process
All water distribution system:	
2,501 - 5,000 linear feet	$150
5,001 - 10,000 linear feet	$250
Greater than 10,000 linear feet	$500

(c) A fee shall be remitted with each application made in accordance with the schedule in subsection (b). Checks shall be made payable to the department of environmental management.

(d) The fee shall not be refundable once staff review and processing of the permit application has commenced.

[As amended at: 22 IR 2498.]

327 IAC 8-3-8 ------- Public water supply construction permits: incorporation by reference

Recommended Standards for Waterworks, 1997 Edition, Great Lakes—Upper Mississippi River Board of State Public Health and Environmental Managers, is incorporated by reference into this rule and may be obtained from Health Education Services, P.O. Box 7126, Albany, New York 12224 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

[As added at: 22 IR 2499.]

RULE 3.1. PERMITTING AUTHORITY OF UNITS FOR WATER MAIN EXTENSION CONSTRUCTION

327 IAC 8-3.1-1 ----- Permitting authority of units for water main extension construction: definitions

In addition to the applicable definitions contained in IC 13-11-2 and 327 IAC 8-3.2-1, the following definitions apply throughout this rule:

(1) "Professional engineer" means a person registered as a professional engineer by the Indiana state board of registration for professional engineers under IC 25-31.

(2) "Water main" means any pipe located between all entry points to the distribution system and all customer service connection meters.

(3) "Unit" means county, municipality, or township as set forth in IC 36-1-2-23.

[As added at: 22 IR 2499.]

327 IAC 8-3.1-2 ----- Permitting authority of units for water main extension construction: authority and responsibilities

(a) The plans for a water main extension are not required to be submitted to any state agency for a permit, permission, or review, unless required by the federal law, if the following are met:

(1) A person submits plans to a unit concerning the design or construction of a public water main.

(2) A professional engineer prepared the plans.

(3) The unit provided a review of the plans by a qualified engineer and subsequently approved the plans.

(4) All other requirements specified in this rule and all other rules adopted by the water pollution control board are met.

(b) The proposed construction of a water main must be in accordance with the following:

(1) The Safe Drinking Water Act, 42 U.S.C. 300f-300j-26, as amended*.

(2) The Clean Water Act, 33 U.S.C. 1251-1387, as amended**.

(c) The other requirements specified in rules that have been adopted by the water pollution control board and must be adhered to in the permitting of a public water main include the following:

(1) 327 IAC 8-1: Public Water Supply Direct Additive and Indirect Additive Standards.

(2) 327 IAC 8-2: Drinking Water Standards.

(3) 327 IAC 8-3.2: Technical Standards for Water Mains.

(4) 327 IAC 8-3.3: Public Water System Quantity Requirement Standards.

(5) 327 IAC 8-7: Water Supply and Distribution Systems; Schools and Related Buildings.

(6) 327 IAC 8-8: Water Supply and Distribution Systems; Mobile Home Parks.

(7) 327 IAC 8-9: Water Supply and Distribution Systems; Agricultural Camps.

(8) 327 IAC 8-10: Cross Connections; Control; Operation.

(d) Units shall notify the commissioner of all public water main construction permits that the unit has issued by submitting to the department, on the effective date of the permit, a copy of each issued permit. Each submission shall contain the following information for each issued permit:

(1) Identification number that has been issued by the local unit.

(2) Effective date of the permit.

(3) The county where the construction project is to be located.

(4) The location of the construction project in terms of the following:

(A) Nearest public intersection.

(B) Quarter section, section, township, and range of the approximate center of the construction project.

(C) If the information requested by clause (B) is not available, the latitude and longitude of the approximate center of the construction project to the nearest fifteen (15) seconds.

(5) The maximum number of proposed service connections to the water main.

(6) A description and numerical count of the type or types of facilities to be located at each proposed service connection whether:

(A) residential;

(B) commercial; or

(C) industrial.

(7) A project layout map on an eight and one-half (8.5) inch by eleven (11) inch sheet of paper.

(e) The commissioner may approve alternatives to the notification procedure described in subsection (d) if requested. The alternative notification procedure must provide equivalent information to that required under subsection (d) to be considered for approval.

*The Safe Drinking Water Act as amended on August 6, 1996, is incorporated by reference and may be found at 42 U.S.C. 300f to 42 U.S.C. 300j-26 and is available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

**The Clean Water Act in effect on January 1, 1989, and amended on December 16, 1996, is incorporated by reference and may be found at 33 U.S.C. 1251 to 33 U.S.C. 1387 and is available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

[As added at: 22 IR 2499.]

RULE 3.2. TECHNICAL STANDARDS FOR WATER MAINS

327 IAC 8-3.2-1 ----- Technical standards for water mains: definitions

In addition to the definitions contained in IC 13-11-2 and 327 IAC 8-3-1, the following definitions apply throughout this rule:

(1) "100-year flood" means a flood with an occurrence probability of one percent (1%) each year as determined by the Indiana department of natural resources.

(2) "Accessories" means the constituent elements of a water main, such as pipes, fittings, valves, pumps, and hydrants.

(3) "ASTM standards" means the recommended standards certified by the American Society for Testing and Materials.

(4) "AWWA/ANS standards" means the American National Standard approved by the American Water Works Association.

(5) "Dead-end main" means a portion of a water main that has flow in only one (1) direction and has no planned future extension.

(6) "Fire flow" means the rate of water flow intended for providing fire protection.

(7) "Nonpermeable" means to be constructed of ductile iron with solvent resistant gasket materials or welded steel pipes.

(8) "Normal operating pressure" means the water main pressure maintained regardless of public service load in the absence of extenuating circumstances.

(9) "Professional engineer" means a person who is registered as a professional engineer by the Indiana state board of registration for professional engineers under IC 25-31.

(10) "Transmission main" means any pipe that:

(A) transports water from a surface water intake to a surface water treatment plant;

(B) transports water from a ground water intake (well) to a water treatment plant (if present);

(C) transports finished water from the treatment plant (if present) to the entry point of the distribution system; or

(D) is installed for the purpose of interconnecting separate public water systems.

(11) "Two (2) year average peak" means the arithmetic mean of the highest five (5) daily pumpages as reported over the previous two (2) year period on the public water system's monthly report of operations on record with the department. If the public water system is less than two (2) years old, the term means the arithmetic mean of the highest five (5) daily pumpages as reported on the public water system's monthly report of operations on record with the department.

(12) "Water main" means any pipe located between all entry points to the distribution system and all customer service connection meters.

[As added at: 22 IR 2500.]

327 IAC 8-3.2-2 ----- Technical standards for water mains: incorporation by reference

(a) The following materials, including titles and the names and addresses of where they may be located for inspection and copying, are incorporated by reference into this rule:

(1) The American Society for Testing and Materials standards listed throughout this rule are available in the 1996 Annual Book of ASTM Standards, Part 34, Plastic Pipe and Building Products, 1996 Edition, American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

(2) The American Water Works Association (AWWA) standards listed throughout this rule are available from the American Water Works Association, 6666 West Quincy Avenue, Denver, Colorado 80235 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206. Notwithstanding language to the contrary in the primarily incorporated documents, the version of all secondarily incorporated documents, which are documents referred to in the primarily incorporated documents, shall be the version in effect on the date of final adoption of this rule.

(b) The technical standards presented in subsection (a) are continuously revised on a twenty-four (24) month cycle. The commissioner shall commence rulemaking efforts to update the documents incorporated by reference in this section.

[As added at: 22 IR 2500.]

327 IAC 8-3.2-3 ----- Technical standards for water mains: applicability

The technical standards established in this rule are applicable to the design and construction of all new or modified water main extensions constructed in Indiana as specified in 327 IAC 8-3 or 327 IAC 8-3.1 and to the applications, plans, and specifications of those water main extensions.

[As added at: 22 IR 2501.]

327 IAC 8-3.2-4 ----- Technical standards for water mains: certification

A professional engineer must certify that the water main designs as shown on the application, plans, and specifications are in compliance with this rule.

[As added at: 22 IR 2501.]

327 IAC 8-3.2-5 ----- Technical standards for water mains: additional information on construction permit applications

(a) In addition to the information on the application for construction permit required in 327 IAC 8-3-3, the following information shall be provided with each application for water main extension covered by this rule:

(1) Information describing the project as a new water main, the replacement of an existing water main, or the relocation of an existing water main.

(2) The piping material types, sizes, classes, pressure ratings, and length.

(3) The total length of water main piping.

(4) Types of joints.

(5) Minimum depth of cover.

(6) A statement that indicates the following:

(A) If the water main will provide fire protection.

(B) How the water main will be pressure and leak tested, and disinfected.

(C) If the water main will cross any streams, rivers, or other bodies of water.

(D) If the project area has a history of external corrosion problems.

(7) Information describing how the water main will be anchored at:

(A) each tee, bend, and dead-end; and

(B) any hydrants or other accessories.

(8) The minimum horizontal and vertical separation distances from the water mains and any sanitary or storm sewers.

(9) The spacing between isolation valves and the spacing between hydrants.

(10) The current number of service connections served by the public water system.

(11) The public water system's current two (2) year average peak.

(12) The capacity of the public water system as determined by use of the methods described in 327 IAC 8-3.3-3.

(13) The number and type of service connections added by the water main extension and the corresponding fire flow, average and peak daily customer demand, and the peaking factor as determined by use of the methods described in 327 IAC 8-3.3-2.

(14) Flow test information indicating the flowrate, static pressure, residual pressure, date and time of flow test, elevation of flow test location, and the lengths, material types, and diameters of the water main from the flow test location to the point of connection to the water main extension.

(b) In addition to the certifications on the application for construction permit required in 327 IAC 8-3-3, a certification signed and dated by the public water system certifying the public water system has agreed to furnish drinking water to the water main extension and that the public water system has acknowledged the responsibility for examining the application, plans, and specifications to determine that the water main extension meets local rules, laws, regulations, and ordinances shall be provided with each application for water main extension covered by this rule.

(c) The plans required to be submitted, with an application for construction permit specified in 327 IAC 8-3-3, must bear, on each page of the plans, a dated signature and seal of a professional engineer and must include the following:

(1) Location of existing and proposed roads and lot boundaries.

(2) Location of existing and proposed water main pipes indicating the lengths, diameters, and material types of the water main pipes.

(3) Location of existing and proposed hydrants, isolation valves, road casings, blow-off assemblies, and other accessories.

(4) Location of proposed reaction blocking.

(5) Location of existing and proposed sanitary sewers, storm sewers, and culverts.

(6) Elevation contours at one (1) or two (2) foot intervals.

(7) Delineation of the 100-year floodway and flood plain.

[As added at: 22 IR 2501.]

327 IAC 8-3.2-6 ----- Technical standards for water mains: required easements; other permits

(a) All easements for water main rights-of-way must prohibit the construction of any permanent structure over the water main and must also provide enough access for maintenance with modern mechanical equipment.

(b) All required permits or exemptions from other government entities must be obtained prior to the commencement of construction of any water mains covered by this rule.

[As added at: 22 IR 2502.]

327 IAC 8-3.2-7 ----- Technical standards for water mains: additional issuance requirements for construction permits

(a) For use in this section, the public water system's capacity, the average daily customer demand, and the peaking factor shall be calculated by the methods outlined in 327 IAC 8-3.3-2.

(b) In addition to the issuance requirements for a construction permit described in 327 IAC 8-3-4, the commissioner may deny an application for construction of a water main extension unless the applicant submits evidence that the following issuance requirements are met:

(1) The public water system's current two (2) year average peak is less than ninety percent (90%) of the public water system's capacity.

(2) The sum of the public water system's current two (2) year average peak and the product of the following is less than ninety percent (90%) of the public water system's capacity:

(A) The average daily customer demand resulting from the proposed water main extension.

(B) The peaking factor resulting from the proposed water main extension.

[As added at: 22 IR 2502.]

327 IAC 8-3.2-8 ----- Technical standards for water mains: water main materials

(a) All piping, accessories, and other materials in a water main shall conform to 327 IAC 8-1, contain less than eight percent (8%) by mass lead, and conform to the following applicable standards:

(1) For ductile-iron and fittings, the following standards apply:

(A) C104/A21.4-95 American National Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.

(B) C105/A21.5-93 American National Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems.

(C) C110/A21.10-93 American National Standard for Ductile-Iron and Gray-Iron Fittings, 3 In. through 48 In. (75 mm through 1,200 mm), for Water and Other Liquids.

(D) C111/A21.50-90 American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

(E) C115/A21.15-94 American National Standard for Flanged Ductile-Iron Pipe or Gray-Iron Threaded Flanges.

(F) C150/A21.50-91 American National Standard for the Thickness Design of Ductile-Iron Pipe.

(G) C151/A21.51-91 American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids.

(H) C153/A-21.53-94 American National Standard for Ductile-Iron Compact Fittings, 3 In. through 24 In. (76 mm through 610 mm) and 54 In. through 64 In. (1,400 mm through 1,600 mm), for Water Service.

(2) For steel pipe, the following standards apply:

(A) C200-91 AWWA Standard for Steel Water Pipe, 6 In. (150 mm) and Larger.

(B) C203-91 AWWA Standard for Coal-Tar Protective Coatings and Linings for Steel Water Pipelines-Enamel and Tape-Hot-Applied.

(C) C205-89 AWWA Standard for Cement-Mortar Protective Lining and Coating for Steel Water Pipe-4 In. and Larger-Shop Applied.

(D) C206-91 AWWA Standard for Field Welding of Steel Water Pipe.

(E) C207-94 AWWA Standard for Steel Pipe Flanges for Waterworks Service-Sizes 4 In. through 144 In. (100 mm through 3,600 mm).

(F) C208-83(R89) AWWA Standard for Dimensions for Fabricated Steel Water Pipe Fittings.

(G) C209-90 AWWA Standard for Cold-Applied Tape Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines.

(H) C210-92 AWWA Standard for Liquid-Epoxy Coating Systems for the Interior and Exterior of Steel Water Pipelines.

(I) C213-91 AWWA Standard for Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines.

(J) C214-89 AWWA Standard for Tape Coating Systems for the Exterior of Steel Water Pipelines (includes addendum C214a-91).

(K) C215-94 AWWA Standard for Extruded Polyolefin Coatings for the Exterior of Steel Water Pipelines.

(L) C216-94 AWWA Standard for Heat-Shrinkable Cross-Linked Polyolefin Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines.

(M) C217-90 AWWA Standard for Cold-Applied Petrolatum Tape and Petroleum Wax Tape Coatings for the Exterior of Special Sections, Connections, and Fittings for Buried Steel Water Pipelines.

(N) C218-91 AWWA Standard for Coating the Exterior of Aboveground Steel Water Pipelines and Fittings.

(O) C219-91 AWWA Standard for Bolted, Sleeve-Type Couplings for Plain-End Pipe.

(P) C220-92 AWWA Standard for Stainless-Steel Pipe, 4 In. (100 mm) and Larger.

(3) For concrete pipe, the following standards apply:

(A) C300-89 AWWA Standard for Reinforced Concrete Pressure Pipe, Steel-Cylinder Type, for Water and Other Liquids (includes addendum C300a-93).

(B) C301-92 AWWA Standard for Prestressed Concrete Pressure Pipe, Steel-Cylinder Type, for Water and Other Liquids.

(C) C302-95 AWWA Standard for Reinforced Concrete Pressure Pipe, Noncylinder Type.

(D) C303-95 AWWA Standard for Concrete Pressure Pipe, Bar-Wrapped, Steel-Cylinder Type.

(E) C304-92 AWWA Standard for Design of Prestressed Concrete Cylinder Pipe.

(4) For asbestos-cement pipe, the following standards apply:

(A) C400-93 AWWA Standard for Asbestos-Cement Pressure Pipe, 4 In. through 16 In. (100 mm through 400 mm), for Water Distribution Systems.

(B) C401-93 AWWA Standard for the Selection of Asbestos-Cement Pressure Pipe, 4 In. through 16 In. (100 mm through 400 mm), for Water Distribution Systems.

(C) C402-89 AWWA Standard for Asbestos-Cement Transmission Pipe, 18 In. through 42 In. (450 mm through 1,050 mm), for Potable Water and Other Liquids.

(D) C403-89 AWWA Standard for the Selection of Asbestos-Cement Transmission and Feeder Main Pipe, Sizes 18 In. through 42 In. (450 mm through 1,050 mm).

(5) For valves and hydrants, the following standards apply:

(A) C500-93 AWWA Standard for Metal-Seated Gate Valves for Water Supply Service (includes addendum C500a-95).

(B) C501-92 AWWA Standard for Cast-Iron Sluice Gates.

(C) C502-94 AWWA Standard for Dry-Barrel Fire Hydrants (includes addendum C502a-95).

(D) C503-88 AWWA Standard for Wet-Barrel Fire Hydrants.

(E) C504-94 AWWA Standard for Rubber-Seated Butterfly Valves.

(F) C507-91 AWWA Standard for Ball Valves 6 In. through 48 In. (150 mm through 1,200 mm).

(G) C508-93 AWWA Standard for Swing-Check Valves for Waterworks Service, 2 In. (50 mm) through 24 In. (600 mm) NPS (includes addendum C508a-93).

(H) C509-94 AWWA Standard for Resilient-Seated Gate Valves for Water Supply Service (includes addendum C509a-95).

(I) C510-92 AWWA Standard for Double Check Valve Backflow-Prevention Assembly.

(J) C511-92 AWWA Standard for Reduced-Pressure Principle Backflow-Prevention Assembly.

(K) C512-92 AWWA Standard for Air-Release, Air/Vacuum, and Combination Air Valves for Waterworks Service.

(L) C540-93 AWWA Standard for Power-Actuating Devices for Valves and Sluice Gates.

(M) C550-90 AWWA Standard for Protective Epoxy Interior Coatings for Valves and Hydrants.

(6) For plastic pipe, the following standards apply:

(A) C900-89 AWWA Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. through 12 In., for Water Distribution (includes addendum C900a-92).

(B) C901-88 AWWA Standard for Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. through 3 In., for Water Service.

(C) C905-88 AWWA Standard for Polyvinyl Chloride (PVC) Water Transmission Pipe, Nominal Diameters 14 In. through 36 In.

(D) C906-90 AWWA Standard for Polyethylene (PE) Pressure Pipe and Fittings, 4 In. through 63 In., for Water Distribution.

(E) C907-91 AWWA Standard for Polyvinyl Chloride (PVC) Pressure Fittings for Water, 4 In. through 8 In. (100 mm through 200 mm).

(F) American Society for Testing and Materials (ASTM) D2239-96A Specifications for PE Plastic Pipe (SDRPR).

(G) ASTM D2241-96A Specifications for PVC Plastic Pipe (SDR-PR).

(H) ASTM D3350-96 Specifications for PE Plastic Pipe and Fitting Materials.

(b) All water mains installed in areas of ground water contamination, consisting of solvent, petroleum, or other volatile or semivolatile organic compounds, shall be constructed with nonpermeable piping and accessories.

(c) Piping and accessories previously used exclusively for water mains may be reused if:

(1) the piping or accessories comply with the requirements of subsection (a); and

(2) the piping or accessories have been restored to their original condition.

(d) All connections between pipes shall have mechanical joints or slip-on joints with rubber gaskets with the exception of:

(1) steel pipe that may be welded;

(2) polyethylene (PE) pipes that may be thermojointed by a person who is a manufacturer's certified thermojointer; or

(3) piping described in section 10(d) of this rule.

(e) Water mains constructed with PVC and installed under existing or proposed roadways and railroads shall be cased in conformance with AWWA Standard C900-89, Appendix A or AWWA Standard C905-88, Appendix A.

(f) Water mains that are cased shall conform to AWWA Standard C600-93, Section 6.

(g) Water mains constructed with nonmetallic materials must be equipped with tracing wire or other metallic identification equipment.

[As added at: 22 IR 2502.]

327 IAC 8-3.2-9 ----- Technical standards for water mains: separation of water mains from potential sources of contamination or damage

(a) Water mains shall not be located within ten (10) feet measured horizontally from the outside edge of the water main to the outside edge of any existing and proposed sanitary sewers or storm sewers (sewers), unless the water main and the sewers comply with the following:

(1) The water main and sewers must cross with the water main and sewers separated by a minimum of eighteen (18) inches measured vertically from the outside edge

of the water main to the outside edge of the sewers.

(2) The crossing specified in subdivision (1) must be at a minimum angle of forty-five (45) degrees measured from the center lines of the water main and sewers.

(3) The conditions specified in subdivisions (1) and (2) must be maintained for a minimum distance of ten (10) feet from either side of the water main as measured from the outside edge of the water main to the outside edge of the sewers. All sewer pipe joints within this ten (10) feet distance must be compression type joints.

(4) All sewer pipe must be marked to identify it as a sewer pipe wherever a point of crossing with a water main pipe occurs.

(b) A shorter separation distance than that specified in subsection (a) is allowed if the following is conducted within the separation distances specified in subsection (a):

(1) The sewers are joined with compression type joints and meet all water main requirements as described in sections 8 and 17(a) of this rule.

(2) The water main and sewers are not in contact.

(c) Water mains shall be separated from existing and proposed aboveground or underground storage tanks and their distribution devices containing or potentially containing hazardous materials, petroleum products, or waste materials by a distance of twentyfive (25) feet horizontally measured from the outside edge of the water main to the outside edge of the tank or distribution device and shall not cross such tanks or distribution devices.

(d) Water mains shall be separated from the following existing and proposed potential sources of contamination or damage (sources) by ten (10) feet measured horizontally from the outside edge of the water main to the outside edge of the source and shall not cross such potential sources:

(1) Aboveground and underground storage tanks containing materials other than those under subsection (b) or potable water.

(2) Sewage or septic treatment equipment and septic tank absorption field trenches, lift stations, and grave sites.

(e) No water main shall be within eight (8) feet of a sanitary sewer manhole, a storm sewer manhole, or a drainage grate support structure as measured from the outside edge of the water main to the outside edge of the sanitary sewer manhole, storm sewer manhole, or drainage grate support structure.

(f) Water mains shall be separated from existing or proposed landfills by fifty (50) feet measured horizontally from the edge of the water main to the outside edge of the waste boundary of an existing or proposed landfill. In addition, water mains within three hundred (300) linear feet of the outside edge of a waste boundary of an existing or proposed landfill shall be constructed of nonpermeable materials. Water mains shall not cross or pass through the waste boundary of an existing or proposed landfill.

[As added at: 22 IR 2504.]

327 IAC 8-3.2-10 --- Technical standards for water mains: water mains near surface water bodies

(a) Water mains shall be separated from existing or proposed water bodies by ten (10) feet horizontally measured from the outside edge of the water main to the edge of the typical water line.

(b) Water mains located above surface water bodies shall be:

(1) adequately supported and anchored;

(2) protected from damage and freezing; and

(3) accessible for repair or replacement.

(c) Water mains located under surface water bodies less than fifteen (15) feet in width shall be covered with a minimum of two (2) feet of material.

(d) Water mains going under surface water bodies greater than fifteen (15) feet in width at the crossing point shall:

(1) be constructed with watertight, flexible joints;

(2) have valves placed at both ends of the surface water body that are accessible from the ground surface and not subject to flooding; and

(3) have the upstream valve installed in a manhole structure or meter pit, with permanent taps made on each side of the valve in the manhole structure or meter pit to allow insertion of a leakage meter and to allow for sampling purposes.

[As added at: 22 IR 2505.]

327 IAC 8-3.2-11 ---- Technical standards for water mains: flowrate and pressure in the water main

(a) The flowrate and the pressure requirements of subsection (b) shall be provided at all service connections in a water main extension applicable to this rule.

(b) At a flowrate equal to the peak daily customer demand as determined in 327 IAC 8-3.3-2, the normal operating pressure in the water main shall not be less than twenty (20) psi under all conditions of flow at the ground level at all points in the water main when demonstrated in conformance with subsection (c).

(c) The flowrate and the pressure requirements of subsection (b) shall be demonstrated to the commissioner with either:

(1) a computer-based model; or

(2) other hydraulic calculations.

[As added at: 22 IR 2505.]

327 IAC 8-3.2-12 --- Technical standards for water mains: sizing of piping and accessories

(a) If the water main is to include fire flow with fire hydrants, the minimum size of piping and accessories supplying water to the water main and fire hydrants shall be six (6) inches in diameter. The minimum size of hydrant leads shall be six (6) inches in diameter.

(b) No water main shall be less than three (3) inches in diameter unless:

(1) the material requirements of section 8 of this rule are met;

(2) the water main is a dead-end main less than three hundred fifty (350) feet in length; and

(3) the flowrate and pressure requirements of section 11 of this rule are met.

(c) If a public water system is not providing fire flow, then fire hydrants shall not be installed on water mains.

[As added at: 22 IR 2505.]

327 IAC 8-3.2-13 --- Technical standards for water mains: use of dead-end mains

(a) All dead-end mains shall end with a valve and one (1) additional length of pipe beyond the valve that is properly plugged and capped.

(b) All dead-end main end points shall have flushing devices attached to the valve specified in subsection (a) that is sized to provide at least two and one-half (2.5) feet per second and a maximum of five (5) feet per second in the dead-end main during flushing. No flushing device may be connected directly to a sewer. A flushing device shall be selected in accordance with the following:

(1) The flushing device shall be a fire hydrant, flushing hydrant, or blow-off assembly if the diameter of the water main pipe is at least six (6) inches in diameter.

(2) The flushing device shall be a flushing hydrant or blow-off assembly if the diameter of the water main pipe is less than six (6) inches in diameter.

[As added at: 22 IR 2505.]

327 IAC 8-3.2-14 --- Technical standards for water mains: placement of isolation valves and air relief valves

(a) Isolation valves shall be provided on water mains in accordance with the following:

(1) Isolation valves shall be located at points necessary so that the maximum distance along the water main not served by an isolation valve shall be less than six hundred (600) linear feet.

(2) Where water suppliers serve widely scattered customers and where future development is not expected, the isolation valve spacing shall not exceed two thousand five hundred (2,500) linear feet.

(b) Air relief valves or other air relief devices shall be installed at any intermediate apex points in the water main where air may accumulate in the water main. All air relief valves must be equipped with an exhaust pipe extending to a downward facing elbow with a corrosion-resistant, twenty-four (24) mesh screened opening at an elevation of eighteen (18) inches above ground level. Automatic or manually operated air relief valves shall be selected in accordance with the following:

(1) Automatic air relief valves shall not be used in areas within the one hundred (100) year flood plain, in a pit, chamber or manhole where flooding may occur unless the automatic air relief valve is equipped with a downward facing exhaust pipe with a corrosion resistant, twenty-four (24) mesh screened opening at an elevation of eighteen (18) inches above the ground surface and above the one hundred (100) year flood elevation.

(2) Manually operated air relief valves shall be used in areas within the one hundred (100) year flood plain, in a pit, chamber, or manhole where flooding may occur.

[As added at: 22 IR 2505.]

327 IAC 8-3.2-15 --- Technical standards for water mains: fire and flushing hydrants

(a) All fire or flushing hydrant leads shall have auxiliary valves.

(b) Fire hydrant and flushing hydrant drains shall be separated from potential sources of contamination by ten (10) feet horizontally measured from the outside edge of the hydrant to the outside edge of the potential sources of contamination.

(c) Fire hydrants or flushing hydrants shall be located at points necessary so that the maximum distance along a water main not served by a fire hydrant or flushing hydrant shall be less than six hundred (600) linear feet.

(d) Fire hydrants shall be connected to a water main at least six (6) inches in diameter that has been designed to carry fire flow and shall have a bottom valve size at least five (5) inches in diameter, one (1) four and one-half (4.5) inch pumper nozzle, and two (2) two and one-half (2.5) inch nozzles.

(e) Hydrants, when used for flushing the water main, shall be able to provide at least two and one-half (2.5) cubic feet per second of water velocity at the point immediately preceding the exit point.

[As added at: 22 IR 2506.]

327 IAC 8-3.2-16 --- Technical standards for water mains: chamber drainage

The chambers, pits, or manholes containing valves, air relief valves, blow-offs, cross-connection prevention devices, meters, or other devices connected directly or indirectly to the water main shall not be connected directly to any storm drain or sanitary sewer. All chambers, pits, or manholes shall be drained to the ground surface that is not prone to flooding by surface water or to absorption pits underground.

[As added at: 22 IR 2506.]

327 IAC 8-3.2-17 --- Technical standards for water mains: installation

(a) All water mains and their accessories shall be installed and pressure and leak tested in accordance with the applicable provisions of AWWA Standard C600-93, C602-89, C603-

90, C605-94, or C606-87. If an AWWA Standard is not available for the particular installation, the manufacturer's recommended installation procedure shall be followed.

(b) Continuous and uniform bedding shall be provided in the trench for all buried pipe. Backfill material shall be tamped in layers around the pipe and to a sufficient height above the pipe to adequately support and protect the pipe. All stones unable to pass through a U.S. Standard Sieve opening of two (2) inches that are found in the trench within six (6) inches of the outside edge of the pipe shall be removed.

(c) All necessary reaction blocking, tie rods, or joints designed to prevent movement for pipes and fittings (regardless of material type) at tees, bends, plugs, and hydrants shall be installed to prevent movement in conformance with AWWA Standard C600-93, Section 3.8.

(d) Water mains shall be covered with earthen cover in accordance with the following:

Depth of Cover Requirements for Water Mains

County	Cover[1] (in)
Adams	60
Allen	60
Bartholomew	48
Benton	60
Blackford	60
Boone	54
Brown	48
Carroll	60
Cass	60
Clark	36
Clay	54
Clinton	54
Crawford	36
Daviess	48
Dearborn	48
Decatur	48
Dekalb	60
Delaware	60
Dubois	42
Elkhart	60
Fayette	54
Floyd	36
Fountain	60
Franklin	48
Fulton	60
Gibson	42
Grant	60
Greene	54
Hamilton	54
Hancock	54
Harrison	36
Hendricks	54
Henry	54
Howard	60
Huntington	60
Jackson	48
Jasper	60
Jay	60

Jefferson	42
Jennings	48
Johnson	54
Knox	48
Kosciusko	60
LaGrange	60
Lake	60
LaPorte	60
Lawrence	48
Madison	60
Marion	54
Marshall	60
Martin	48
Miami	60
Monroe	48
Montgomery	60
Morgan	48
Newton	60
Noble	60
Ohio	42
Orange	42
Owen	54
Parke	60
Perry	36
Pike	42
Porter	60
Posey	42
Pulaski	60
Putnam	54
Randolph	54
Ripley	48
Rush	54
St. Joseph	60
Scott	36
Shelby	54
Spencer	36
Starke	60
Steuben	60
Sullivan	54
Switzerland	42
Tippecanoe	60
Tipton	60
Union	48
Vanderburgh	36
Vermillion	60
Vigo	60
Wabash	60
Warren	60
Warrick	36
Washington	36
Wayne	54
Wells	60

White	60
Whitley	60

[1] The cover dimension is measured from the top of pipe to the proposed finish grade.

[As added at: 22 IR 2506.]

327 IAC 8-3.2-18 --- Technical standards for water mains: disinfection

(a) All new, cleaned, or repaired water mains shall be disinfected in accordance with AWWA Standard C651-92.

(b) All chlorinated water shall be disposed of by either:

(1) disposal to a sanitary sewer with the approval of the local sewer authority; or

(2) disposal to a location other than a sanitary sewer after obtaining a discharge permit from the commissioner.

(c) All laboratory reports documenting the conformance with AWWA Standard C651-92, Section 7, shall be submitted to the commissioner before the water main is brought into service. The laboratory used shall be approved by the commissioner. The laboratory report presenting the sample results shall be sent to the commissioner within ten (10) working days of receipt from the laboratory. The laboratory results shall have the commissioner's assigned permit number marked on the upper right hand corner of the top page.

[As added at: 22 IR 2508.]

327 IAC 8-3.2-19 --- Technical standards for water mains: cross connection control

All service connections to facilities designated as a cross connection hazard by 327 IAC 8-10-4(c) shall be equipped with either a reduced pressure principle or an air gap backflow preventer according to 327 IAC 8-10-7.

[As added at: 22 IR 2508.]

327 IAC 8-3.2-20 --- Technical standards for water mains: technical standard alternative demonstration

(a) An alternative to technical standards required by this rule may be approved by the commissioner for either a single application or for public water system-wide applications of the technical standard if the applicant demonstrates in a written submission that the alternative will achieve the following:

(1) Meet the issuance requirements of 327 IAC 8-3-4.

(2) Provide drinking water of at least the same satisfactory quality and normal operating pressure at the peak operating flowrate as the technical standards of this rule would provide.

(b) An approved alternative to a technical standard shall be in effect for one (1) year from the commissioner's approval of that alternative standard.

(c) An alternative to a technical standard shall only apply to the application or the public water system for which the alternative is requested.

[As added at: 22 IR 2508.]

RULE 3.3. PUBLIC WATER SYSTEM QUANTITY REQUIREMENT STANDARDS

327 IAC 8-3.3-1 ----- Public water system quantity requirement standards: definitions

In addition to definitions contained in IC 13-11-2, 327 IAC 8-1-1, and 327 IAC 8-3-1, the following definitions apply throughout this rule:

(1) "Agricultural labor camp" means an area as described in IC 16-41-26-1.

(2) "Primary pumps" means any pumps used to deliver drinking water to the distribu-

tion system. Primary pumps are the high service pumps in a staged treatment system. Primary pumps are the well pumps in a public water system that utilizes no treatment.

(3) "Rated capacity" means the optimum flowrate output for the intended use from a device as determined by the manufacturer of the device.

[As added at: 22 IR 2508.]

327 IAC 8-3.3-2 ----- Public water system quantity requirement standards: calculation of for average and peak demand conditions

(a) The calculated average and peak flowrate values required for a water main extension to a public water system shall be equal to the average and peak daily consumer demands of the proposed additional service connections calculated as follows:

(1) The public water supply quantity requirement for the average daily consumer demand for residential service connections shall be determined by using a general average daily demand value. The following method shall be used to calculate average and peak supply quantity requirements:

ADCD = (General Avg) x PRSC

PDCD = (ADCD x PF) + FF

Where:	ADCD	=	Average daily consumer demand in gallons per residential service connection per day.
	PDCD	=	Peak daily consumer demand in gallons per residential service connection per day.
	General Avg	=	General average daily consumer demand value of five hundred (500) gallons per residential service connection per day.
	PRSC	=	Proposed number of residential service connections.
	PF	=	Peak daily consumer demand factor of two and one-half (2.5).
	FF	=	Fire flow demand value equal to the fire protection flowrate provided by the public water system or zero (0) if the public water system is not providing fire protection.

(2) The public water supply quantity requirement for the average and peak daily consumer demand for residential service connections may be determined from the monthly reports of operations (MROs) as follows:

(A) The following method may be used to calculate average and peak supply quantity requirements for a public water system that has been in operation for at least ten (10) years and has an accurate record of MROs for that time period:

ADCD = (Max Average) x PRSC

PDCD = (ADCD x PF) + FF

Where:	ADCD	=	Average daily consumer demand in gallons per residential service connection per day.
	PDCD	=	Peak daily consumer demand in gallons per residential service connection per day.
	Max Average	=	Maximum average daily consumer demand in gallons per service connection as calculated by:

Max Average = (ADCD10) ÷ (SC10)

Where:	ADCD10	=	The highest average daily demand as reported on the MROs over the previous ten (10) year period.
	SC10	=	The number of service connections at ADCD10.
	PRSC	=	Proposed number of residential service connections.

PF = Peak daily demand factor as calculated by the following:

$$PF = MDD10 \div 10YADD$$

Where: MDD10 = The maximum single day demand as reported on the MROs over the previous ten (10) year period.

10YADD = The ten (10) year average daily demand as calculated from the previous ten (10) year period.

FF = Fire flow demand value equal to the fire protection flowrate provided by the public water system or zero (0) if the public water system is not providing fire protection.

(B) If a public water service has not been in operation for at least ten (10) years, then all available MROs shall be used to determine the highest average daily demand (ADCD10), the number of service connections at ADCD10 (SC10), the maximum single day demand (MDD10), and the ten (10) year average daily demand (10YADD).

(3) The public water supply quantity requirement for the average and peak daily consumer demand for service connections described by Table 2-1 in subsection (b). The following method may be used to calculate the average and peak public water supply quantity requirements:

$$ADCD = DCF \times PSC$$

$$PDCD = (ADCD \times PF) + FF$$

Where: ADCD = Average daily consumer demand in gallons per service connection per day.

PDCD = Peak daily consumer demand in gallons per service connection per day.

DCF = Demand calculation factors as contained in Table 2-1 in subsection (b).

PSC = Proposed number of service connections.

PF = Peak daily consumer demand factor of two and one-half (2.5).

FF = Fire flow demand value equal to the fire protection flowrate provided by the public water system or zero (0) if the public water system is not providing fire protection.

(4) If the average and peak daily consumer demand cannot be determined or calculated using the methods described in subdivision (1), (2), or (3), the determination of the average and peak daily consumer demand must be approved by the commissioner. The source and any calculations or assumptions must be approved by the commissioner.

(b) The following demand calculation factors shall be used in the calculations under subsection(a)(3):

Table 2-1

Demand Calculation Factors (DCF)

Service Connection Description	DCF (gallons per day)
Airport per employee	3 per passenger plus 20
Assembly Hall	3 per seat
Bar (without Food Service)	10 per seat
Beauty Salon	35 per customer
Bowling Alley (with Bar and/or Food)	125 per lane

Bowling Alley (without Food Service)	75 per lane
Bus Station	3 per passenger
Campground Organizational with Flush Toilets	40 per camper
Campground Organizational without Flush Toilets	20 per camper
Campground Recreational with Individual Sewer Connection	100 per campsite
Campground Recreational without Individual Sewer Connection	50 per campsite
Church with Kitchen	5 per sanctuary seat
Church without Kitchen	3 per sanctuary seat
Correctional Facilities	120 per inmate
Day Care Center	20 per person
Dentist	750 per chair plus 75 per employee
Factory with Showers	35 per employee
Factory without Showers	20 per employee
Food Service Operations Cocktail Lounge	35 per seat
Food Service Operations Restaurant, not Open 24 Hours	35 per seat
Food Service Operations Restaurant, Open 24 Hours	50 per seat
Food Service Operations Restaurant, open 24 hours and Located Along an Interstate	70 per seat
Food Service Operations Tavern	35 per seat
Food Service Operations Curb Service (Drive-In)	50 per car space
Hospital, Medical Facility	200 per bed
Hotel	100 per room
Kennel	20 per animal enclosure
Mental Health Facility	100 per patient
Motel	100 per room
Nursing Home	100 per bed
Office Building	20 per employee
Outpatient Surgical Center	50 per patient
Picnic Area	5 per visitor
School Elementary	15 per pupil
School Secondary	25 per pupil
School with Dormitory	100 per bed
Service Station (Gas Station)	400 per restroom
Shopping Center	0.1 per square foot of floor space, plus 20 per employee
Swimming Pool Bathhouse	10 per swimmer
Theater Drive-In	5 per car space
Theater Inside Building	5 per seat

[As added at: 22 IR 2508.]

327 IAC 8-3.3-3 ----- Public water system quantity requirement standards: determination of public water system capacity

(a) A public water system's daily capacity shall be determined by adding together the production capacity determined under subsection (b) and the purchased capacity, if any, determined under subsection (c).

(b) The production capacity is the lesser of the following amounts:

(1) The "design daily production" in gallons per day as reported on the most recent Public Water System Sanitary Survey conducted by the commissioner pursuant to 327 IAC 8-2-8.2.

(2) The sum of the rated daily capacity of all primary pumps utilized by a public water supplier less the primary pump with the largest rated capacity. For example, a public water system with a five hundred (500) gallons per minute pump and a four hundred (400) gallons per minute pump would have a system capacity of four hundred (400) gallons per minute.

(c) A public water system that supplements its own capacity by purchasing water may add the amount of the purchase capacity to the public water system daily capacity. The purchase capacity is one (1) of the following amounts:

(1) The contractual amount, expressed as a daily quantity, of water purchased from a separate public water system.

(2) The commissioner's approved amount, expressed as a daily quantity, of water purchased from a separate public water system. The commissioner's approval of the purchase capacity is required when:

(A) no purchase water contract exists; or

(B) no finite daily quantity of water is specified in the purchase water contract.

[As added at: 22 IR 2510.]

327 IAC 8-3.3-4 ----- Public water system quantity requirement standards: additional for school buildings and related facilities

(a) All school buildings and related facilities shall be supplied with safe, potable water from an approved source and an approved distribution system.

(b) The drinking water for school buildings and related facilities shall be supplied at the flowrate and pressure required by 327 IAC 8-3.2-11 and at the quality required by 327 IAC 8-2 and in accordance with the following:

(1) The water supply and distribution system shall be sized and constructed to deliver water at twenty (20) pounds per square inch minimum pressure to all fixtures and appurtenances during periods of peak water demand.

(2) Notwithstanding subdivision (1), school buildings may be served by hand-operated well pumps where religious custom precludes using electrically or gasoline driven well pumps providing the well and well pump are located and constructed in compliance with this rule and applicable sections of 410 IAC 6-5.1.

(c) A connection to a public water supply shall be made with its potable water used exclusively wherever such supply is available or becomes available within a reasonable distance from the school facility, with the exception that nonpotable sources of water are available and may be utilized for the following nonpotable activities:

(1) Lawn sprinkling.

(2) Bus washing.

(3) Firefighting.

(4) Other nonpotable uses provided by a nonpotable distribution system having no connection to the potable system.

(d) Where a community public water supply is not available, a properly located and constructed private water supply shall be provided. Beginning on the effective date of this rule, all new and modified public water systems exclusively serving schools and related

facilities shall be equipped with a backup system capable of providing drinking water in accordance with subsection (b).

(e) Well pumps, pressure tanks, storage tanks, treatment facilities, and piping shall be sized to meet peak daily consumer demands. The minimum usable capacity of the pressure tank, in gallons, shall be three (3) times the installed well pump capacity in gallons per minute. For example, a pump of thirty (30) gallons per minute capacity would require a pressure tank of ninety (90) gallons usable capacity. If the well or pump cannot meet peak demands, sufficient additional usable storage capacity shall be provided to meet peak demands.

(f) Each school building or addition to a school building may have a potable water supply where necessary to provide adequate service. However, where two (2) or more school potable water supply systems are located on the same site, the water supply systems shall be sufficiently interconnected to allow for the maximum possible utilization of each should a system fail.

(g) Unless lower water system demands can be documented to the satisfaction of the commissioner, all school buildings and additions to school buildings constructed after February 17, 1985, shall have a water supply system capable of furnishing a minimum of:

(1) fifteen (15) gallons per day per student up through the elementary grades;

(2) twenty-five (25) gallons per day per student in grades greater than elementary; and

(3) one hundred (100) gallons per day per dormitory bed based on maximum building occupancy.

[As added at: 22 IR 2511.]

327 IAC 8-3.3-5 ----- Public water system quantity requirement standards: additional for mobile home parks

(a) An accessible, adequate, safe, and potable supply of water shall be provided in all mobile home parks and additions.

(b) Where a public water supply is available, a connection shall be made thereto and its water used exclusively.

(c) A water-tight casing pipe extending at least twelve (12) inches above the ground shall surround any part of a suction pipe, drop pipe, or delivery pipe not normally under constant pressure and located within twenty-five (25) feet of the ground surface.

(d) Each mobile home lot shall be provided with a cold water tap extending at least four (4) inches above the ground surface. The outlet shall be protected from freezing by the use of a heater tape, insulation, or draining when not in use. In no case shall a stop-and-waste valve or other device that would allow aspiration or backflow or contaminated water into the potable water system be used.

(e) The individual water and sewer connections on each mobile home lot shall be separated not less than five (5) feet horizontally.

(f) The water supply system shall be capable of furnishing a minimum of two hundred (200) gallons per day per mobile home lot in all mobile home parks constructed after June 14, 1974, as well as in all additions to mobile home parks constructed after the date.

[As added at: 22 IR 2511.]

327 IAC 8-3.3-6 ----- Public water system quantity requirement standards: additional for agricultural labor camps

(a) An adequate and convenient supply of water that meets the water quality standards of the department pursuant to 327 IAC 2 shall be available at all times in each agricultural labor camp for culinary, drinking, bathing, and laundry purposes. Where a public water supply is available, it shall be used to provide water for the agricultural labor camp.

(b) A cold water tap shall be available within one hundred (100) feet of each individual living unit when water is not provided in the unit. Adequate drainage facilities shall be provided for overflow and spillage.

[As added at: 22 IR 2512.]

RULE 3.4. PUBLIC WATER SYSTEM WELLS

327 IAC 8-3.4-1 ----- Public water system wells: definitions

In addition to the definitions contained in IC 13-11-2, the following definitions apply throughout this rule:

(1) "Agricultural labor camp" means an area as described in IC 16-41-26-1.

(2) "Annulus" means the space between the exterior of a well casing and the inside diameter of the borehole.

(3) "Bentonite" means clay material composed predominantly of sodium montmorillonite which meets American Petroleum Institute specifications standard 13-A, Drilling Fluid Materials (1985)*.

(4) "Bentonite slurry" means a mixture, made according to manufacturer specifications, of water and commercial grouting or plugging bentonite which contains high concentrations of solids. The term does not include sodium bentonite products which contain low solid concentration or which are designed for drilling fluid purposes.

(5) "Certified professional geologist" means a person who is certified as a professional geologist by the board of certification for professional geologists under IC 25-17.6.

(6) "Community public water supply system" or "CPWSS" or "community" means a public water system that serves at least fifteen (15) service connections used by year-round residents or regularly serves at least twenty-five (25) year-round residents.

(7) "Course grade crushed bentonite" means natural bentonite crushed to an average size range of three-eighths (3/8) to three-fourths (3/4) inches.

(8) "Direct additives" means chemical additives that are used in public water systems for the treatment of raw water. Direct additives are also used to protect drinking water during storage and distribution. Examples of direct additives include agents used for the following:

(A) Coagulation and flocculation.

(B) Corrosion and scale control.

(C) Softening.

(D) Sequestering.

(E) Precipitation.

(F) pH adjustment.

(G) Disinfection.

(H) Oxidation.

(9) "Distribution system" means one (1) of the following:

(A) In a community public water supply system, the term means the network of water piping, pumping stations, storage equipment, valves, fire hydrants, pressure regulators, and equipment required to transport water to the customer's service connection from one (1) of the following points:

(i) A treatment plant.

(ii) A source of raw water supply if no treatment is provided.

(B) In a noncommunity public water supply system, the term means the network of water piping, pumping stations, valves, fire hydrants, pressure regulators, and equipment required to transport water to the point of use from one (1) of the following:

(i) A point that is one (1) foot beyond the water storage tank.

(ii) The well if no water storage tank is utilized.

(10) "Drawdown" means the vertical difference measured between the static and the

pumping water levels. This term is commonly expressed in units of length.

(11) "Flowing well" means a well completed in a confined aquifer where the water rises naturally to an elevation above land surface.

(12) "Indirect additives" means additives that are materials or equipment that come in contact with drinking water or come in contact with direct additives. Examples of indirect additives include the following:

(A) Pipes, valves, and related products.

(B) Barrier or baffle materials.

(C) Joining and sealing materials.

(D) Protective materials and related products.

(E) Mechanical devices or structures used in treatment, storage, transmission, and distribution systems.

(13) "Isolation area" means the separation distance of a public water supply system production well from a potential or existing source of contamination or damage as described in section 9 of this rule.

(14) "Medium grade crushed bentonite" means natural bentonite crushed to an average size range of one-fourth (1/4) to three-eighths (3/8) inch.

(15) "Noncommunity public water supply system" or "NCPWSS" means a public water system that serves at least fifteen (15) service connections used by nonresidents or regularly serves twenty-five (25) or more nonresident individuals daily for at least sixty (60) days per year.

(16) "Nontransient noncommunity public water supply system" means a noncommunity public water supply system that:

(A) serves at least fifteen (15) service connections used by nonresidents; or

(B) regularly serves the same twenty-five (25) or more nonresident individuals daily for at least six (6) months per year.

(17) "Normal operating pressure" means the water pressure maintained in a system regardless of public service load in the absence of extenuating circumstances.

(18) "Peak daily consumer demand" means the flowrate as determined in 327 IAC 8-3.3.

(19) "Primary pump" means a pump used to deliver drinking water to a distribution system.

(20) "Production well" or "well" means a well that provides water for human consumption within the applicability of section 2 of this rule.

(21) "Professional engineer" means a person who is registered as a professional engineer by the state board of registration for professional engineers under IC 25-31.

(22) "Pumping test" means a test that is conducted to determine well performance or aquifer characteristics.

(23) "Rated capacity" means the flowrate that a pump is capable of producing at a total dynamic head as determined by the manufacturer of that pump. This term is usually expressed as a unit of volume produced from a well within a unit of time.

(24) "Regulatory flood" has the meaning as set forth in 310 IAC 6-1-3.

(25) "Schedule 40" refers to the unit of size of standard steel pipe. Standard pipe sizes are designated by the nominal size and schedule number; the schedule numbers are related to the permissible operating pressure of the pipe and to the allowable stress of the steel of the pipe. The range of schedule numbers is from ten (10) to one hundred sixty (160) with the higher numbers indicating a heavier wall thickness. Since all schedules of pipe of a given nominal size have the same outside diameter, the higher schedules have a smaller inside diameter.

(26) "Specific capacity" means the rate of discharge of a production well per unit of drawdown. This term is commonly expressed as a unit of volume produced from a well within a unit of time per length or depth of drawdown.

(27) "Static water level" means the level of water (including seasonal fluctuations) in the production well that is not influenced by pumping.

(28) "Test well" means a well that is installed to obtain hydrogeological information or to monitor the quality or quantity of ground water.

(29) "Unconsolidated formations" means geologic materials overlying bedrock, such as sand, gravel, and clay.

(30) "Usable capacity" means the volume of water available in a hydropneumatic tank as measured from the pump shut-off pressure to the pump starting pressure.

*This document is incorporated by reference. Notwithstanding language to the contrary in the primarily incorporated documents, the versions of all secondarily incorporated documents, which are those documents referred to in the primarily incorporated documents, shall be the versions in effect on the date of final adoption of this rule. Copies of this publication may be obtained from American Petroleum Institute, 1220 L Street NW, Washington, D.C. 20005 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

[As added at: 22 IR 3366.]

327 IAC 8-3.4-2 ----- Public water system wells: applicability

The technical standards established in this rule are applicable to the design and construction of new or modified public water supply system production wells constructed in Indiana as specified in 327 IAC 8-3 and to the applications, plans, and specifications of those water wells that are reviewed by the commissioner.

[As added at: 22 IR 3368.]

327 IAC 8-3.4-3 ----- Public water system wells: certification

A professional engineer must certify that the well design as shown on an application, plans, and specifications for a public water supply system well is in compliance with this rule.

[As added at: 22 IR 3368.]

327 IAC 8-3.4-4 ----- Public water system wells: required information regarding the location of a proposed production well

(a) Two (2) copies of the following information shall be provided with each application for a proposed production well or for the conversion of an existing well to a production well:

(1) A description of the purpose of the proposed well, including the following:

(A) The anticipated well yield.

(B) The anticipated system demand.

(2) The following, as applicable, to demonstrate ownership or control of the isolation area of the proposed well:

(A) A copy of a recorded deed or easement.

(B) A certified statement attesting to the ownership or control of the isolation area of the proposed well.

(3) The rated capacity of the existing well or wells if the proposed well is in an existing well field.

(4) The number of wells proposed for construction in the application.

(5) The highest flood elevation on record with the Indiana department of natural resources in the proposed isolation area, as determined in section 9 of this rule, if any part of the isolation area is in an area identified by the Federal Emergency Management Agency (FEMA) as a flood hazard.

(b) The following two (2) types of public water supply systems shall submit an application, for a new production well, that provides the information as specified:

(1) A CPWSS subject to this rule shall submit two (2) copies of the following:

(A) The information required by 327 IAC 8-4.1-13.

(B) Driving directions to the well site.

(2) A NCPWSS subject to this rule shall submit two (2) copies of the following:

(A) A detailed map, drawn to a scale, showing the following:

(i) The proposed well site with ownership or easement boundaries.

(ii) The location of the proposed well.

(iii) The standard isolation area in accordance with section 9 of this rule.

(iv) The results of a visual survey showing all sources of contamination within a radius of one thousand (1,000) feet.

(B) The United States Geological Survey (USGS) quadrangle name for the proposed production well site.

(C) A summary of geologic and ground water quality information, where available, for the aquifer system utilized by a proposed well.

(D) Driving directions to the production well site.

(c) The plans required to be submitted with an application for a construction permit specified in 327 IAC 8-3-3 shall be submitted in duplicate and include plans of the proposed well site in accordance with the following:

(1) Each sheet of the plans must bear a dated signature and seal of a professional engineer.

(2) Include the entire isolation area, as described in section 9 of this rule, or the area within a one hundred (100) foot radius from the proposed well casing, whichever is greater, along with a description specifying the following:

(A) The finished grade that will prevent surface water ponding near the well location.

(B) The highest flood elevation on record with the Indiana department of natural resources in the proposed isolation area if any part of the isolation area is in an area identified by the FEMA as a flood hazard.

(C) The location of the following existing or proposed facilities:

(i) Wells.

(ii) Roads and buildings.

(iii) Discharge piping.

(iv) Raw water transmission main.

(v) Sanitary sewers, storm sewers, manholes, and culverts.

(vi) Septic or sewage treatment equipment, including absorption field trenches.

(vii) Aboveground storage tanks, underground storage tanks, and the distribution device serving a tank of either type.

(viii) Surface water bodies.

(ix) A potential source of contamination not described in this clause.

(3) If an existing or proposed facility listed in subdivision (2)(C) is not present in the isolation area, the application for a construction permit shall specify that fact.

[As added at: 22 IR 3368.]

327 IAC 8-3.4-5 ----- Public water system wells: required information regarding the mechanics of a new production well

(a) The information required in this section shall be provided:

(1) when a construction permit application is submitted; or

(2) in accordance with section 6 of this rule as a postconstruction submittal.

(b) The following information shall be provided for a production well, whether it is proposed for construction or modification:

(1) The type of proposed well described as tubular, gravel pack, radial collector, rock, or other type of well.
(2) The type of drilling method described as rotary, cable tool, bucket, or other type of drilling method.
(3) The depth of the proposed well.
(4) The following information regarding the casing of the proposed well:
    (A) Length.
    (B) Diameter of the casing.
    (C) Diameter of the borehole.
    (D) Casing material characteristics, including the following:
        (i) Material type.
        (ii) Schedule or thickness.
        (iii) Pressure rating if polyvinyl chloride (PVC) is utilized as the casing material.
    (E) Relative elevation or mean sea level elevation of the following:
        (i) Top of casing.
        (ii) Finished well house floor or slab.
        (iii) Top of gravel pack.
        (iv) Pump base.
        (v) Finished grade.
(5) The following information regarding the well screen:
    (A) Material type.
    (B) Length.
    (C) Diameter.
    (D) Slot size of screen.
    (E) Design entrance velocity.
    (F) Elevation of the following:
        (i) Top of screen.
        (ii) Base of screen.
(6) The following information regarding the grout:
    (A) Material type.
    (B) Depth and the extent of the grouting.
(7) The following information regarding the well pump:
    (A) Type.
    (B) Total dynamic head.
    (C) Number of stages.
    (D) Rated capacity.
    (E) Pump curves.
    (F) Type of lubrication.
    (G) Provisions for power source.
    (H) Provisions for emergency operation.
(8) A description of equipment utilized for water level measurement.
(9) The following information regarding the discharge piping:
    (A) Material type.
    (B) Pressure rating.
    (C) Diameter.
    (D) Description of the flow measuring equipment.

(E) Location of the following:

(i) Check valve.

(ii) Shut off valve.

(iii) Pressure gauge.

(iv) Smooth nosed sample tap.

(v) Air relief or vacuum relief valves where applicable.

(vi) Threaded or flanged port for maintenance and testing.

(c) The plans required to be submitted with an application for construction permit under 327 IAC 8-3-3 must include a cross section and plan view of the applicable proposed production well mechanics that includes the following:

(1) Overall depth.

(2) Depth of grouting.

(3) Well screen location.

(4) Casing details.

(5) Discharge piping or raw water transmission main and components.

(6) Well house and other protective equipment.

(7) Pumping equipment.

(8) Storage equipment.

(9) Water treatment equipment.

[As added at: 22 IR 3369.]

327 IAC 8-3.4-6 ----- Public water system wells: postconstruction submittal of information

(a) If the applicant has elected to submit the information required in section 5 of this rule as a postconstruction submittal, the following must be received by the commissioner at least thirty (30) days before a new or modified production well with an effective construction permit is placed into production:

(1) The construction permit number assigned by the commissioner.

(2) Proposed commencement date of production.

(3) Information required in section 5 of this rule.

(4) As-built construction drawings, in accordance with section 5 of this rule and 327 IAC 8-3.

(b) The total of thirty (30) days, as specified in subsection (a), shall include all calendar days from the commissioner's datestamped receipt of the items, specified in subsection (a), excluding the calendar days that occur between the following two (2) activities:

(1) A commissioner's written notification to the applicant that the submittal does not fulfill the requirements of subsection (a) or is incomplete, is inaccurate, or indicates the proposed construction was not in accordance with this rule or 327 IAC 8-3-4.

(2) The commissioner's date-stamped receipt of the applicant's submittal of additional information subsequent to the commissioner's notification, as described in subdivision (1), to demonstrate that the submittal has achieved the requirements of subsection (a) and is complete, is accurate, and indicates the proposed construction was in accordance with this rule and 327 IAC 8-3-4.

(c) The commissioner may modify or revoke the construction permit based on the information submitted under subsection (a) in accordance with IC 13-18-16-2.

[As added at: 22 IR 3370.]

327 IAC 8-3.4-7 ----- Public water system wells: required easements, other permits

(a) An easement, deed restriction, or right-of-way granted for a production well must:

(1) prohibit the construction of any permanent structure, with the exception of structures associated with the housing of the well equipment, over the production well; and

(2) provide access to the production well site for maintenance purposes.

(b) A permit or exemption required by another government entity for a production well must be obtained prior to the commencement of construction under this rule.

[As added at: 22 IR 3370.]

327 IAC 8-3.4-8 ----- Public water system wells: production well materials

(a) A direct additive used with a production well must be in accordance with 327 IAC 8-1.

(b) An indirect additive in a production well shall be certified for conformance to American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) International Standard 61, Drinking Water System Components-Health Effects, with the exception of Section 9, Mechanical Plumbing Product (November 13, 1997)*.

(c) The certification requirement of subsection (b), that an indirect additive is in accordance with this rule, shall be satisfied if the indirect additive is listed with certification in one (1) of the following publications:

(1) "NSF Listings, Drinking Water Additives-Health Effects" (November 13, 1997)*.

(2) "Classified or Recognized Drinking Water System Components, Component Materials and Treatment Additives Directory" (December 1997)**.

(d) The commissioner may approve the use of an indirect additive in a production well only after the applicant has demonstrated that the indirect additive is in compliance with the following:

(1) The indirect additive has been approved and is listed by one (1) of the publications specified by subsection (c).

(2) The indirect additive has been approved by an organization having a third party certification program for indirect additives that has been approved by the American National Standards Institute.

(e) A lead packer shall not be used in a production well.

(f) A public water supply system shall not introduce, permit, or allow the introduction of a material into the drinking water that does not meet the requirements of this rule or 327 IAC 8-1.

*These documents are incorporated by reference. Notwithstanding language to the contrary in the primarily incorporated documents, the versions of all secondarily incorporated documents, which are those documents referred to in the primarily incorporated documents, shall be the versions in effect on the date of final adoption of this rule. Copies of this publication may be obtained from NSF International, 3475 Plymouth Road, Ann Arbor, Michigan 48113-0140 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

**This document is incorporated by reference. Notwithstanding language to the contrary in the primarily incorporated documents, the versions of all secondarily incorporated documents, which are those documents referred to in the primarily incorporated documents, shall be the versions in effect on the date of final adoption of this rule. Copies of this publication may be obtained from Underwriters Laboratory, Inc., Engineering Services, 416C, 333 Pfingsten Road, Northbrook, Illinois 600622096 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

[As added at: 22 IR 3370.]

327 IAC 8-3.4-9 ----- Public water system wells: separation of a production well from a potential or existing source of microbiological or chemical contamination or damage

A public water supply system shall comply with the following provisions for the separation of a production well from a potential or existing source of contamination or damage:

(1) The isolation area from a potential or existing source of contamination for the construction of a public water system production well is the circular area within a radius as stated in the following table:

Table 9-1

Isolation Radius Provisions (Linear Feet Measured from the Outside Edge of the Well Casing)

Public Water System Type	Standard Isolation Radius	Well Subjected to Automatic Disinfection*	Favorable Hydrogeologic Conditions are Present**
Community	200	100	100
Noncommunity greater than or equal to 70 gpm***	200	100	100
Noncommunity, Susceptible Populations****	200	100	100
Noncommunity, Nonsusceptible, less than 70 gpm***	100	100	100

*Automatic disinfection as described in subdivision (2).

**Favorable hydrogeologic conditions as described in subdivision (3).

***70 gallons per minute (gpm) as measured per pump (rated capacity).

****Schools, correctional facilities, health care facilities, and agricultural labor camps.

(2) The radius creating the isolation area shall be one hundred (100) feet for a well that will be subject to automatic disinfection treatment meeting the provisions of 327 IAC 8-2-8.6 prior to entering the distribution system.

(3) A determination of favorable hydrogeological conditions may be approved by the commissioner after the submission of a report that is signed, dated, and sealed by a certified professional geologist or other person legally authorized to perform geological services or a professional engineer who applies geology to the practice of engineering. The report must include the following information:

(A) The thickness, vertical permeability, and spatial continuity of a protective layer or layers overlying the production aquifer.

(B) The local and regional geologic conditions of the well site area.

(C) The relative susceptibility to contamination of the proposed production aquifer.

(4) A well discharging into the inlet side of a surface water treatment process plant that meets the requirements of 327 IAC 8-2-8.5 and 327 IAC 8-2-8.6 shall not be held to an isolation area requirement.

(5) The isolation area shall be subject to the following additional requirements:

(A) The separation distance between two (2) or more wells of a public water supply system shall be maintained in accordance with the following:

(i) A production well with a pumping capacity of less than seventy (70) gallons per minute (GPM) shall not be located closer than fifty (50) feet from another production well.

(ii) A production well with a pumping capacity of greater than or equal to seventy (70) GPM shall not be located closer than one hundred (100) feet from another production well.

(iii) A public water supply system drinking water well that is a part of a transient noncommunity public water supply system that is not a nontransient noncommunity public water supply system shall not be closer than fifty (50) feet, regardless of the capacity of pumping equipment, from another well in the system.

(B) A storm or sanitary sewer shall not be located within the isolation area of a production well unless the storm or sanitary sewer is:

(i) more than fifty (50) feet, as measured from all directions, from a public water supply system production well; and

(ii) constructed in accordance with 327 IAC 8-3.2-8, 327 IAC 8-3.2-17(a), and 327 IAC 8-3.2-17(b).

(C) The standard isolation area for a public water supply system production well shall conform to the following requirements concerning transportation routes:

(i) Roadways, paved surfaces, and parking areas for service vehicles that:

(AA) service the proposed well, pump, and appurtenances;

(BB) are owned or controlled by the public water supply system; and

(CC) are restricted from access by the public;

shall not be held to an isolation area requirement.

(ii) Roadways, paved surfaces, and parking areas that are part of the following shall not be located within fifty (50) feet of a well:

(AA) Residential subdivisions.

(BB) Apartment communities.

(CC) Mobile home parks.

(DD) Recreational parks.

(iii) A transportation route, such as a railway, roadway, paved area, or parking area, including paved or unpaved roadway or surface areas, that is:

(AA) accessible in full or in part for commercial or industrial transportation activities; or

(BB) listed as a hazardous material route;

shall not be located within the standard isolation area as measured from the outside edge of the well casing to the traveled portion of the transportation route.

(D) The distance between the location of a public water supply system production well casing and a surface water body, such as a stream, pond, lake, river, impoundment, or drainage ditch, shall be a minimum of twenty-five (25) feet.

(6) The commissioner may modify the requirements of an isolation area or a separation distance to an alternative area or distance so long as the alternative area or distance shall be able to provide the same factor of safety for filtering pathogenic contaminants as the standard isolation area or separation distance. The commissioner's decision to allow an alternative isolation area or separation distance shall be based on the following conditions:

(A) The applicant's submission of a report describing:

(i) treatment processes;

(ii) geologic features;

(iii) additional raw water monitoring provisions; or

(iv) other means of providing pathogenic contaminant filtration.

(B) The report required by clause (A) must:

(i) be signed and sealed by a professional engineer or certified professional geologist; or

(ii) cite the applicable provisions of 327 IAC 8-4.1.

(7) A supplier of water to a public water system shall own or control the isolation area by recorded deed, easement, or long term lease.

(8) The use, application, storage, mixing, loading, and transportation of pesticides in accordance with IC 15-33.5, IC 15-3-3.6, and the rules and guidance thereunder, developed by the pesticide review board and the office of the Indiana state chemist, may occur within the standard isolation area if the following requirements are met by the public water system:

(A) The production well casing is constructed of steel in accordance with section 16 of this rule.

(B) The product is stored within a containment system designed, constructed, operated, and maintained to contain spills or leaks.

(9) Water treatment chemicals and fuels for water production equipment containing contaminants that are not registered pesticides regulated under the federal Safe Drinking Water Act, 42 U.S.C. 300f et seq., as amended August 6, 1996* may be used, stored, mixed, loaded, and transported within the standard isolation area if the following conditions are met:

(A) The production well casing is constructed of steel in accordance with section 16 of this rule.

(B) The product is stored within a containment system designed, constructed, operated, and maintained to contain spills or leaks.

(C) The product is stored in an underground or aboveground storage tank that is in conformance with applicable federal, state, and local laws and regulations.

*The federal Safe Drinking Water Act is incorporated by reference. Copies of this law may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46206.

[As added at: 22 IR 3371.]

327 IAC 8-3.4-10 --- Public water system wells: production well design criteria

(a) A new public water supply system production well must have capacity to meet the pressure and flowrate demands of the system as calculated in section 12 of this rule.

(b) A public water supply system production well that is equipped with a well screen shall:

(1) possess a sustainable yield that prevents the pumping level from dropping below the top of the well screen; and

(2) operate with an entrance velocity less than or equal to one-tenth (0.1) foot per second.

(c) A public water supply system production well shall be evaluated to determine whether it is under the direct influence of surface water as required under 327 IAC 8-2-8.5(b).

[As added at: 22 IR 3372.]

327 IAC 8-3.4-11 ---- Public water system wells: production well minimum diameter

(a) The minimum inside diameter of a production well casing shall be five (5) inches.

(b) The minimum inside diameter of a production well casing shall be in accordance with the following table:

Table 11-1
Production Well Casing Minimum Diameter Requirements (inches) Based on Outside Diameter of Pump Assembly

Outside Diameter of Pump Assembly	Minimum (Actual) Inside Diameter of Well Casing
4	5
5	6
6	8
8	10
10	12
12	14

14	16
16	20
18	22
20	24
22	26

For a pump assembly with an outside diameter of between four (4) inches and twenty-two (22) inches but not appearing on this table, linear interpolation shall be used to determine the minimum inside diameter of the production well casing. For a pump assembly with an outside diameter greater than twenty-two (22) inches, the minimum inside diameter of the production well casing shall be at least one and twenty-five hundredths (1.25) times the outside diameter of the pump assembly.

[As added at: 22 IR 3373.]

327 IAC 8-3.4-12 --- Public water system wells: flowrate and pressure requirements

(a) The normal operating pressure in the distribution system of a noncommunity public water supply system shall meet the following conditions:

(1) Be a minimum of thirty-five (35) pounds per square inch (psi) at ground level for a flowrate equal to the average daily consumer demand as determined in 327 IAC 8-3.3-2.

(2) Be at least twenty (20) psi under all conditions of flow in the distribution system and at ground level for a flowrate equal to the peak daily consumer demand as determined in 327 IAC 8-3.3-2.

(b) Flowrate and pressure requirements for a community public water supply system shall be in accordance with the requirements of 327 IAC 8-3.2-11.

[As added at: 22 IR 3373.]

327 IAC 8-3.4-13 --- Public water system wells: backup provisions for production wells

(a) The following backup provisions shall apply to both a community public water supply system and a noncommunity public water supply system having a pumping capacity greater than or equal to seventy (70) gallons per minute:

(1) The backup provisions shall be designed to provide system conformance with section 12 of this rule when the largest pump is out of service.

(2) A system shall have one (1) or more backup wells designed to provide system conformance with section 12 of this rule.

(b) Schools, correctional facilities, health care facilities, and agricultural labor camps, regardless of pumping capacity, must comply with the requirements of subsection (a).

[As added at: 22 IR 3373.]

327 IAC 8-3.4-14 --- Public water system wells: hydropneumatic storage tanks

(a) A hydropneumatic storage tank shall abide by the following:

(1) The requirements of IC 22-12 and 680 IAC.

(2) Shall not be buried except when in accordance with subdivisions (3) and (4).

(3) A tank shall be protected from freezing and flooding.

(4) Provide housing as follows:

(A) A hydropneumatic storage tank with an air-water diaphragm separator shall be within housing.

(B) Hydropneumatic storage tanks without an air-water separator shall have all nontank mechanical parts, including valves, piping, and components, within housing.

(5) Be equipped to provide the following:

(A) The ability to isolate the tank from the rest of the public water system.

(B) A drain.

(C) Control equipment consisting of the following:

(i) A pressure gauge.

(ii) Pressure relief valve.

(iii) Air addition as follows:

(AA) Manual air addition may suffice for a hydropneumatic storage tank with an air-water diaphragm separator.

(BB) Equipment for automatic air addition shall be required for all other hydropneumatic storage tanks.

(iv) Start and stop controls for the pumps.

(b) The usable capacity of a hydropneumatic storage tank must be a minimum of three (3) times the installed rated capacity, in gallons per minute, of the primary pump, or pumps if more than one (1) pump is used to meet peak system demand, at an operating pressure of at least thirty-five (35) pounds per square inch.

(c) Hydropneumatic tank storage of water shall not be designated for fire protection purposes.

(d) A hydropneumatic tank shall not be used in a community public water supply system when more than four hundred (400) persons are served.

[As added at: 22 IR 3373.]

327 IAC 8-3.4-15 --- Public water system wells: discharge piping

Discharge piping shall:

(1) meet the material requirements of 327 IAC 8-3.2-8;

(2) meet the installation requirements of 327 IAC 8-3.2-17;

(3) have control valves and other accessories located above the pumphouse floor when the discharge piping is located above grade; and

(4) be equipped with:

(A) check valve;

(B) shut off valve;

(C) pressure gauge;

(D) flow measuring equipment for individual or collective flow measurement;

(E) smooth nosed sample tap installed where positive pressure is maintained; and

(F) threaded or flanged port for maintenance and testing.

[As added at: 22 IR 3374.]

327 IAC 8-3.4-16 --- Public water system wells: casing and screen requirements

(a) A drinking water production well casing shall meet the following requirements:

(1) A steel or stainless steel casing is required for the following:

(A) A community public water supply system.

(B) A public water supply system production well casing with an inside diameter greater than six (6) inches.

(2) Steel or stainless steel shall meet the following:

(A) Schedule 40 if the casing is less than or equal to ten (10) inches in diameter.

(B) Be at least three hundred seventy-five thousandths (0.375) of an inch in thickness if the casing is greater than ten (10) inches in diameter.

(3) Steel or stainless steel pipe used in a well casing shall be joined by:

(A) threading and the use of screwed couplings; or

(B) welding with full circumference welds.

(4) A production well not regulated under subdivision (1) may be equipped with a polyvinyl chloride (PVC) well casing when all of the following are met:

(A) The production well is not located within two hundred (200) feet of stored or staged petroleum products or any known sources of volatile or semivolatile organic contaminants.

(B) The PVC casing is joined by solvent welding or mechanical joints that use PVC locking strips and synthetic watertight sealing gaskets.

(C) The PVC well casing and joints meet the requirements of ANSI/ASTM F480-94 for "Thermoplastic Water Well Casing Pipe and Couplings made in Standard Dimension Ratios (SDR)" (Annual Book of ASTM Standards, March 1994)*.

(D) The minimum wall thickness of PVC casing is at least the equivalent of SDR 21 according to ANSI/ASTM F480-94 for "Thermoplastic Water Well Casing Pipe and Couplings made in Standard Dimension Ratios (SDR)" (Annual Book of ASTM Standards, March 1994)*.

(E) PVC casing shall be protected from damage from collision in accordance with the following:

(i) Three (3) posts shall be placed in an equilateral formation no more than twenty-four (24) inches in radius from the outside edge of the casing.

(ii) The posts specified in item (i) shall be concrete-filled steel posts at least four (4) inches in diameter or hollow steel at least twenty-five hundredths (0.25) of an inch in thickness.

(iii) The posts specified in item (i) shall extend at least three (3) feet above grade and four (4) feet below grade.

(5) A permanent well casing shall terminate as follows:

(A) At the higher level of one (1) of the following:

(i) At least eighteen (18) inches above finished grade.

(ii) At least thirty-six (36) inches above the regulatory flood elevation if located in a designated flood hazard area identified by the Federal Emergency Management Agency (FEMA).

(B) At least twelve (12) inches above the pump house floor or concrete apron.

(b) The casing shall be vented to the atmosphere with a vent that terminates in a downturned position at or above the top of the casing or the pitless adapter unit. The vent shall have a minimum one and one-half (1 1/2) inch diameter opening covered with a twenty-four (24) mesh, noncorrodible screen.

(c) A production well shall meet the following construction requirements:

(1) Have a maximum deviation from plumb not in excess of two-thirds (2/3) of the inside diameter of the well casing per one hundred (100) feet of well depth.

(2) Be aligned to permit proper operation of the type of permanent pump intended for the well. Alignment shall be tested as follows:

(A) By lowering into the well, through its entire depth, a section of pipe forty (40) feet long or a dummy of the same length.

(B) The pipe or dummy used as specified by clause (A) shall be in accordance with the following:

(i) One-half (1/2) inch less in diameter than the inside diameter of the part of the casing or hole being tested when the casing or hole diameter is ten (10) inches or less.

(ii) One (1) inch smaller than the inside diameter when that part of the casing or hole being tested is greater than ten (10) inches.

(C) An alignment test shall not be required inside well screens.

(d) A production well completed in an unconsolidated formation shall have screens installed and constructed of one (1) of the following materials:

(1) Stainless steel.

(2) PVC only if the casing material is also PVC.

(e) A production well casing shall be fitted to permit measurements of static and pumping water levels.

(f) A production well in an unconsolidated formation shall be packed with silica gravel if it has artificial gravel wall filters.

(g) The well house floor shall be at least six (6) inches above grade.

*This document is incorporated by reference. Notwithstanding language to the contrary in the primarily incorporated documents, the versions of all secondarily incorporated documents, which are those documents referred to in the primarily incorporated documents, shall be the versions in effect on the date of final adoption of this rule. Copies of this publication may be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

[As added at: 22 IR 3374.]

327 IAC 8-3.4-17 --- Public water system wells: pitless adapter unit requirements

A production water well equipped with a pitless unit shall meet the following requirements:

(1) A pitless unit shall be constructed of steel or stainless steel unless the well casing is constructed of PVC in accordance with section 16 of this rule.

(2) A pitless unit shall be installed on the well casing using one (1) of the following types of joints:

(A) Welded.

(B) Flanged.

(C) Threaded.

(3) The discharge connection of a pitless unit shall be pressurized at all times.

(4) A pitless unit shall be designed so that the pump can be removed for servicing and maintenance without disturbing the underground discharge piping.

(5) A pitless unit shall have an inside diameter greater than or equal to the casing diameter if the casing diameter is less than twelve (12) inches.

(6) At least one (1) check valve shall be installed inside the well casing if a submersible pump is used.

(7) A compression joint shall not be used for the installation of a pitless unit.

(8) A buried suction line is not permitted.

(9) A saddle-type pitless adapter is not permitted.

[As added at: 22 IR 3375.]

327 IAC 8-3.4-18 --- Public water system wells: cross connection control requirements

Backflow and back siphonage prevention must be provided in accordance with 327 IAC 8-10.

[As added at: 22 IR 3375.]

327 IAC 8-3.4-19 --- Public water system wells: emergency operation of a production well

Unless an alternate water supply capable of meeting average demand is available, a production well shall have the electrical equipment necessary for the use of one (1) of the following:

(1) Dual power feeds.

(2) Standby generators.

[As added at: 22 IR 3375.]

327 IAC 8-3.4-20 --- Public water system wells: rotary well drilling procedure requirements

A well constructed using rotary drilling shall be drilled in accordance with the following:

(1) The borehole shall be at least three (3) inches greater in diameter than the outside diameter of the proposed casing.

(2) The well shall be cased to a minimum depth of fifty (50) feet below the ground surface unless otherwise approved by the commissioner according to section 27 of this rule.

(3) A production well constructed in an unconsolidated formation shall be gravel packed with silica gravel to an elevation at least ten (10) feet above the elevation of the top of the well screen.

(4) The well shall have a minimum of twenty-five (25) feet of the borehole annulus grouted in accordance with section 23 of this rule.

(5) A well penetrating bedrock shall have the borehole annulus grouted, in accordance with section 23 of this rule, from the bottom of the well casing, or the top of the formation packer to the ground surface or pitless adapter connection.

[As added at: 22 IR 3376.]

327 IAC 8-3.4-21 --- Public water system wells: cable tool well drilling procedure requirements

A well constructed using cable tool drilling shall be drilled in accordance with the following:

(1) A borehole, with an inside diameter at least three (3) inches greater than the outside diameter of the well casing to be driven, shall be dug to a depth of at least three (3) feet, but no more than five (5) feet, below the ground surface.

(2) The well casing shall be centered in the larger diameter borehole, and the borehole shall remain full of a bentonite slurry or granular bentonite during the installation of the well casing.

(3) Notwithstanding section 23 of this rule, bentonite slurry may be introduced into the borehole annulus by gravity methods in a manner to prevent bridging.

(4) The well shall be cased to a minimum depth of fifty (50) feet below the ground surface unless otherwise approved by the commissioner according to section 27 of this rule.

(5) The well must be grouted in accordance with section 23 of this rule if one (1) of the following occurs:

(A) A larger diameter temporary casing is used to install a smaller diameter permanent well casing.

(B) A larger diameter borehole is drilled to install a smaller diameter well casing.

[As added at: 22 IR 3376.]

327 IAC 8-3.4-22 --- Public water system wells: bucket well requirements

Bucket well use, materials, and procedures must be presented as alternative technical standards in accordance with section 27 of this rule.

[As added at: 22 IR 3376.]

327 IAC 8-3.4-23 --- Public water system wells: grouting requirements

This section governs grouting materials and the installation of grouting materials.

(1) Grouting materials shall consist of the following:

(A) Neat cement grout shall consist of cement conforming to ASTM C150 (1996

Annual Book of ASTM Standards)* and contain at least two percent (2%) but no more than five percent (5%) by weight of bentonite additive.

(B) Bentonite slurry that can include polymers designed to retard swelling.

(C) Pelletized, granular, medium-grade, or coarse-grade crushed bentonite.

(D) Concrete grout shall consist of equal amounts of:

(i) cement, conforming to AWWA A100-90, Section 7 (effective February 1, 1991)**; and

(ii) sand mixed with the addition of water to make a mixture not exceeding six (6) gallons of water per one (1) cubic foot of cement;

and contain at least two percent (2%) but no more than five percent (5%) by weight of bentonite additive.

(2) The installation of grouting materials shall be in accordance with the following:

(A) Except as provided in section 21(2) of this rule, neat cement and bentonite slurry shall be pressure pumped into place with a grout pipe from the bottom of the annular space upward in a continuous operation.

(B) Pelletized, granular, medium-grade, or coarse-grade crushed bentonite shall be introduced in a manner to prevent bridging of the borehole annulus.

(C) Concrete grout shall be installed according to one (1) of the following:

(i) Pressure pumped.

(ii) Placed by gravity through a grout pipe from the bottom of the annular space upward in a continuous operation.

(iii) Introduced in a manner to prevent bridging of the borehole annulus.

(3) The annulus of a well shall be grouted with one (1) of the types of grout as specified in subdivision (1) and in accordance with the applicable grout installation methods specified in subdivision (2), with the exception of a prohibition against using the method named in subdivision (2)(C)(iii), if:

(A) the diameter of the borehole is eight (8) inches or larger than the outside diameter of the well casing; and

(B) the well is equal to or less than one hundred (100) feet in depth.

(4) The annulus of a well shall be pressure grouted with neat cement, concrete grout, or a bentonite slurry if:

(A) the diameter of the borehole is less than eight (8) inches larger than the outside diameter of the well casing; or

(B) the well is greater than one hundred (100) feet in depth.

(5) The annulus of a well may be grouted, with concrete grout containing gravel not larger than one-half (1/2) inch in size, by using gravity without the use of a grout pipe if:

(A) the diameter of the borehole is greater than twelve (12) inches larger than the outside diameter of the well casing; and

(B) the depth to be grouted is equal to or less than ten (10) feet.

(6) Grouting of the borehole annulus shall be accomplished upon the earlier of the following events:

(A) Within twenty-four (24) hours following the installation of the well casing.

(B) The removal of drilling equipment from the proposed well location.

(7) All work on the well shall cease during the grout set up time as specified by the grout material supplier.

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Street, Philadelphia, Pennsylvania 19103 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

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[As added at: 22 IR 3376.]

327 IAC 8-3.4-24 --- Public water system wells: disinfection procedure requirements

(a) The disinfection procedures described in this section shall be performed with one (1) of the following approved forms of chlorine:

(1) Calcium hypochlorite.

(2) Sodium hypochlorite.

(b) Gravel installed in a new production well must be chlorinated by use of the following method:

(1) Silica gravel for gravel pack shall be disinfected with calcium hypochlorite or sodium hypochlorite prior to installation in a well at a rate that will produce a liquid concentration of at least fifty (50) milligrams per liter (mg/L) as the gravel is installed.

(2) The gravel, disinfected according to subdivision (1), shall be fed into a gravel chute or tremie to completely fill the annular void outside the well casing to the top gravel pack level.

(3) Chlorine shall be added to the well, following the activity described in subdivision (2), and circulated until a chlorine concentration of not less than fifty (50) mg/L in the entire volume of fluid is achieved.

(c) Immediately before placement in the void caused by settled gravel in a well, replacement gravel shall be soaked in a chlorine solution of at least fifty (50) mg/L for a duration not less than thirty (30) minutes during initial construction or subsequent repairs.

(d) Permanent equipment and material used in a production well shall be chlorinated prior to installation by spraying exposed areas with a solution containing a chlorine residual of no less than two hundred (200) milligrams per liter (mg/l).

(e) A new or modified well proposed to be a production well shall be chlorinated in accordance with one (1) of the following:

(1) The water in the well casing shall be treated for disinfection as follows:

(A) To create a chlorine residual of one hundred (100) milligrams per liter to the entire volume of water in the casing, well screen, and rock hole, if present.

(B) The well must be chlorinated using the compound requirements in Table 24-1.

(C) The well must be surged at least three (3) times following chlorination.

(D) The chlorinated water must remain in the well casing at least twelve (12) hours following the surging activity of clause (C).

(2) The water in the well casing shall be treated for disinfection as follows:

(A) To create a chlorine residual of fifty (50) mg/l to the entire volume of water in the casing, well screen, and rock hole, if present.

(B) The well must be chlorinated using the compound requirements in Table 24-1.

(C) The well must be surged at least three (3) times following chlorination.

(D) The chlorinated water must then remain in the well casing at least twenty-four

(24) hours following the surging activity of clause (C).

Table 24-1

Well-Hole or Well-Casing Diameter (in.)	Volume per 100 Feet of Water Depth (gal)	Amount of Chemical Compound: Calcium Hypochlorite* (65 percent available Cl_2)	Amount of Chemical Compound: Sodium Hypochlorite† (12 trade percent‡)
5	106.09	1.1 oz	5.65 fl oz
6	146.9	1.5 oz	7.8 fl oz
8	261.1	2.7 oz	13.9 fl oz
10	408.0	4.2 oz	1.4 pt
12	587.5	6.0 oz	2.0 pt
16	1,044.0	10.7 oz	3.5 pt
20	1,632.0	1 lb 1 oz	0.7 gal
24	2,350.0	1 lb 8 oz	1.0 gal
30	3,672.0	2 lb 6 oz	1.5 gal
36	5,287.0	3 lb 6 oz	2.2 gal
48	9,400.0	6 lb 1 oz	3.9 gal
60	11,690.0	9 lb 7 oz	6.1 gal

Notes:

*Quantities of Ca $(OCl)_2$ based on 65 percent available chlorine by dry weight (16 oz = 1 lb).

†Quantities of NaOCl based on 12 trade percent available chlorine by US liquid measure (1 gal = 4 qt = 8 pt = 128 fl oz).

‡Trade percent is a term used by chlorine manufacturers; trade percent x 10 = grams of available chlorine in 1 liter of solution.

(f) After disinfection accomplished in accordance with subsection (e), a new or modified public water supply system production well and a flowing well shall be sampled for the presence of coliform at least twice, with sampling done no less than twenty-four (24) hours apart, by a laboratory certified by the Indiana state department of health. If the presence of coliform is indicated by the sample results, the disinfection of the well shall be repeated.

(g) Disposal of chlorinated water from well disinfection shall be to one (1) of the following sources:

(1) A sanitary sewer with the approval of the local sewer authority.

(2) A location other than a sanitary sewer in accordance with local, state, and federal regulations.

[As added at: 22 IR 3377.]

327 IAC 8-3.4-25 --- Public water system wells: postconstruction testing and reporting requirements

(a) The following information must be submitted to the commissioner before a new or modified production well is placed into production:

(1) Results of a production well performance test (PWPT) that was performed for a period of at least twenty-four (24) hours for a community public water supply system and at least eight (8) hours for a noncommunity public water supply system. The PWPT information submitted to the commissioner shall include the following:

(A) Pumping rate of test (at least one (1) times the maximum daily pumping rate).

(B) Static water level (stable before pumping).

(C) Water level at start up and at interim readings.

(D) Water level at the end of the PWPT.

(E) Specific capacity at the end of the PWPT.

(2) A copy of the Indiana department of natural resources' record of water well completed in accordance with the requirements of 310 IAC 16-2-6.

(3) The results of water quality samples obtained during test pumping.

(4) The results of disinfection confirmation samples obtained during disinfection.

(5) Completed copies of the chemical analytical reports of sampling done and analyzed by a laboratory certified by the Indiana department of health for the following constituents:

(A) Nitrate (NO_3).

(B) Fluoride.

(b) The commissioner may modify or revoke a construction permit based on the information submitted under subsection (a) in accordance with IC 13-18-16-2.

[As added at: 22 IR 3378.]

327 IAC 8-3.4-26 --- Public water system wells: conversion of a nonproduction well to a production well

(a) A nonproduction well, such as a test well or a nonpublic water supply system well, must receive a construction permit in accordance with 327 IAC 8-3 before the well can be used as a production well to provide drinking water to a public water supply system.

(b) The commissioner may require the following information, in accordance with sections 4 and 5 of this rule and 327 IAC 83-3, for the purpose of reviewing a proposed conversion of a nonproduction well to a production well to confirm that the proposed production well conforms with this rule:

(1) As-built drawings.

(2) Report discussing the proposed production well and its conformance to this rule and 327 IAC 8-3-4.

[As added at: 22 IR 3379.]

327 IAC 8-3.4-27 --- Public water system wells: alternative to technical standards

(a) An alternative to a technical standard required by this rule may be approved by the commissioner for either a single application or for a public water supply system-wide application if the applicant demonstrates, in a written submission, that the alternative will meet the following:

(1) The requirements of 327 IAC 8-3-4.

(2) Provide drinking water of at least the same quality and normal operating pressure at the peak flowrate as the technical standards in this rule would provide.

(b) Continuing operation of the approved alternative technical standard shall require no renewal if the alternative technical standard is operated in the manner approved by the commissioner.

(c) An alternative to a technical standard shall only apply to the application or the public water supply system for which the alternative is requested.

[As added at: 22 IR 3379.]

RULE 3.5. GENERAL CONSTRUCTION PERMIT FOR WATER MAINS

327 IAC 8-3.5-1 ----- General construction permit for water mains: definitions

In addition to the definitions contained in 327 IAC 8-3-1, the following definitions apply throughout this rule:

(1) "Alternative technical standard" means alternative technical standards as described in 327 IAC 8-3.2-20.

(2) "Average daily customer demand" means the average daily customer demand as determined in accordance with 327 IAC 8-3.3-2.

(3) "Entry point of the distribution system" means one (1) of the following points:

(A) For public water systems that utilize water treatment facilities, the point at

which the drinking water has left the treatment facilities and has entered the distribution system.

(B) For public water systems that do not utilize water treatment facilities, the point at which the drinking water has left the supply facilities and has entered the distribution system.

(4) "General construction permit ban" means a decision issued in conformance with section 8 of this rule.

(5) "Notice of intent letter" or "NOI" means a written notification indicating a responsible person has elected to comply with the terms of this general construction permit rule in lieu of applying for an individual construction permit.

(6) "Peaking factor" means the peak daily customer demand factor as determined in accordance with 327 IAC 8-3.3-2.

(7) "Public water system" means a public water supply for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen (15) service connections or regularly serves at least twenty-five (25) individuals daily at least sixty (60) days out of the year. The term includes any collection, treatment, storage, and distribution facilities under control of the operator of such system, and used primarily in connection with such system and any collection or pretreatment storage facilities not under such control that are used primarily in connection with such system.

(8) "Public water system's daily capacity" means the public water system's daily capacity as determined in accordance with 327 IAC 8-3.3-3.

(9) "Responsible person" means a person as described by section 6 of this rule.

(10) "Two (2) year average peak" means the arithmetic mean of the highest five (5) daily pumpages as reported over the previous two (2) year period on the public water system's monthly report of operations on record with the department. If the public water system is less than two (2) years old, the term means the arithmetic mean of the highest five (5) daily pumpages as reported on the public water system's monthly report of operations on record with the department.

(11) "Water main" means any pipe located between all entry points to the distribution system and all customer service connection meters.

(12) "Transmission main" means a pipe described by any of the following:

(A) That transports water from a surface water intake to a surface water treatment plant.

(B) That transports water from a groundwater intake (well) to a water treatment plant (if present).

(C) That transports finished water from the treatment plant (if present) to the entry point of the distribution system.

(D) That is installed for the purpose of interconnecting separate public water systems.

[As amended at: 23 IR 1627.]

327 IAC 8-3.5-2 ----- General construction permit for water mains: incorporation by reference

(a) The following materials are incorporated by reference into this rule, to the extent provided in other sections of this rule:

(1) The American Water Works Association (AWWA) Standard C700-90.

(2) The American Water Works Association (AWWA) Standard C701-88.

(3) The American Water Works Association (AWWA) Standard C702-92.

(4) The American Water Works Association (AWWA) Standard C703-96.

(b) The matters incorporated by reference in subsection (a) may be obtained from either of the following:

(1) American Water Works Association, 6666 West Quincy Avenue, Denver, Colorado 80235.

(2) Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

[As added at: 22 IR 2522.]

327 IAC 8-3.5-3 ----- General construction permit for water mains: eligibility and exclusions for eligibility

(a) A responsible person as defined by section 6 of this rule is eligible for a general construction permit.

(b) A responsible person, responsible person's engineer, responsible person's developer, or the proposed public water system that has been issued a general construction permit program ban by the commissioner in accordance with section 8 of this rule is not eligible for a general construction permit.

(c) Proposed water main projects funded in entirety or in part by the Drinking Water State Revolving Fund are not eligible for a general construction permit.

(d) Proposed water main projects to a public water system under a connection ban in accordance with 327 IAC 8-3-4.2 are not eligible for a general construction permit.

(e) Proposed water main projects that meet any of the following criteria are not eligible for a general construction permit as defined by this rule:

(1) The corresponding public water system has a two (2) year average peak that is between ninety percent (90%) and one hundred percent (100%) of the public water system's daily capacity, and the product of the following is equal to or exceeds two percent (2%) of the public water system's daily capacity:

(A) The average daily customer demand of the proposed water main.

(B) The peaking factor of the proposed water main.

(2) The corresponding public water system's two (2) year average peak is equal to or less than ninety percent (90%) of the public water system's daily capacity and the sum of corresponding public water system's two (2) year average peak, and the product of the following is equal to or exceeds ninety-two percent (92%) of the public water system's daily capacity:

(A) The average daily customer demand of the proposed water main.

(B) The peaking factor of the proposed water main.

(3) The sum of corresponding public water system's two (2) year average peak and the product of the following is equal to or exceeds one hundred percent (100%) of the public water system's daily capacity:

(A) The average daily customer demand of the proposed water main.

(B) The peaking factor of the proposed water main.

(f) Proposed projects that meet the definition of a transmission main as defined by section 1 of this rule are not eligible for a general construction permit.

(g) An individual construction permit issued under 327 IAC 8-3 is required for all other water main extension construction meeting the criteria of 327 IAC 8-3-2(a) that is not eligible for a general construction permit in accordance with this section or does not meet the general construction permit conditions listed in section 5 of this rule.

[As added at: 22 IR 2522.]

327 IAC 8-3.5-4 ----- General construction permit for water mains: notice of intent letter

(a) A responsible person who elects to participate in the General Construction Permit Program shall submit a NOI that complies with this section and is received by the commissioner at least thirty (30) calendar days before the commencement of construction of the proposed water main.

(b) A NOI must be submitted on forms obtained from the commissioner or a computer generated reproduction that is similar in appearance and identical in content to the forms generated by the commissioner.

(c) The NOI must be submitted by certified mail to the address provided on the NOI form.

(d) The NOI must include the following:

(1) The names, firms, addresses, and telephone numbers of the following:

(A) The responsible person.

(B) The responsible person's professional engineer.

(C) The responsible person's developer, resident project representative, or person who by other means is representing the construction aspects of the proposed project.

(2) The title of the proposed project for which the NOI is submitted.

(3) The name of the public water system and the corresponding public water system identification number, mailing address, and telephone number.

(4) The county and nearest public intersection and the nearest quarter section in which the construction project is located or, if the section, township, and range are not available, the latitude and longitude of the approximate center of the construction project to the nearest fifteen (15) seconds.

(5) A statement from the responsible person that indicates which one (1) of the following two (2) methods of construction activity notification the responsible person will comply with:

(A) The proposed construction schedule is included with the NOI.

(B) The proposed construction schedule will be submitted separate from the NOI at least ten (10) working days before the commencement of the construction and will include a copy of the information required in subdivisions (1) through (4).

(6) The certifications required in section 7 of this rule.

(7) A dated signature from the public water system certifying that the public water system will fulfill the requirements of section 12 of this rule.

(8) The average daily customer demand and the peaking factor of the proposed water main.

(9) The public water system's:

(A) daily capacity; and

(B) two (2) year average peak.

(10) Any fees as required by 327 IAC 8-3-7.

(11) A copy of any approvals from the commissioner of alternative technical standards that will apply to the proposed water main.

(12) A copy of any approvals from the commissioner of alternate average daily customer demand, peaking factor, or peak daily customer demand that will apply to the proposed water main.

(13) A copy of any written authorization of a duly authorized representative of a responsible person.

[As added at: 22 IR 2523.]

327 IAC 8-3.5-5 ----- General construction permit for water mains: general construction permit conditions

(a) The proposed water main extension must meet the issuance requirements of 327 IAC 8-3-4.

(b) A copy of the NOI, all documentation supporting the project, plans, and specifications must be submitted to the public water system before the commencement of the water

main construction.

(c) All documentation supporting the project must be readily accessible for review and copy for the duration of water main construction activities. In addition, a copy of the plans conforming to 327 IAC 8-3.2-5(c) and specifications must be available in accordance with the following:

(1) These items shall be on-site and readily accessible for review and copy throughout the duration of water main construction activities at the site if an office is present at the site.

(2) If there is no office present at the site, these items shall be producible for review and copy throughout the duration of water main construction activities at the site within sixty (60) minutes upon notification by the commissioner.

(d) Persons in violation of this rule shall take all reasonable steps to correct any adverse impact on the public health resulting from their noncompliance.

(e) Nothing in this rule shall be construed to relieve anyone from any responsibility, liability, or penalty to which they are or may be subject to under the local, state, or federal laws and regulations.

(f) Responsible persons identified by and regulated by this rule shall ensure that the construction to the public water system achieves compliance with the terms and conditions of this rule.

(g) During construction, where the public water system, responsible person, the responsible person's professional engineer, or the responsible person's developer, resident project representative, or person who by other means is representing the construction aspects of the proposed project becomes aware of a failure to submit any relevant facts or the submittal of incorrect information in a NOI, the responsible person shall promptly submit such facts or corrected information to the commissioner in writing utilizing certified mail and the address on the NOI form.

(h) The design and construction of the water main must meet all technical standards in 327 IAC 8-3.2 or, if any alternate technical standards are proposed for the project, the alternate technical standard must be approved by the commissioner in accordance with 327 IAC 8-3.2-20, and a copy of this approval must be submitted with the NOI.

(i) All nonresidential service connections must be equipped with a meter, and the size of the meter must be specified on the plans and specification of the water main. The metering devices must not be capable of exceeding the corresponding "Safe Maximum Operating Capacity" as specified on Table 1 of AWWA C700-90, AWWA C701-88, AWWA C702-92, or AWWA C703-96.

(j) At a peak flowrate equal to the peak daily customer demand as determined in subsection (k), the normal operating pressure in the water main shall not be less than twenty (20) pounds per square inch at the ground level at all points in the water main under all conditions of flow when demonstrated in conformance with subsection (l).

(k) For use in this section, the peak flowrate is equal to the sum of subdivisions (1) and (2) defined as follows:

(1) The fire flow value that is one (1) of the following:

(A) The fire protection flowrate that is provided by the public water system for the entire water main extension.

(B) Zero (0) if the public water system is not providing fire protection.

(2) The peak daily demand for each of the individual service connections defined as follows:

(A) For residential service connections, the peak daily customer demand is determined in accordance with 327 IAC 8-3.3-2(a)(1), or the peak daily customer demand as approved by the commissioner in accordance with 327 IAC 8-3.3-2(a)(4).

(B) For nonresidential service connections with meter sizes less than one (1) inch

in diameter, the peak daily customer demand is equal to fifty (50) gallons per minute.

(C) For nonresidential service connections, the peak daily customer demand is equal to the "Safe Maximum Operating Capacity" flowrate as specified on Table 1 of AWWA C700-90, AWWA C701-88, AWWA C702-92, or AWWA C703-96.

(D) For nonresidential service connections, the peak daily customer demand as approved by the commissioner in accordance with 327 IAC 8-3.3-2(a)(4).

(l) The conformance with subsection (j) must be demonstrated with the use of a computer model or with hydraulic calculations, which must be included with the documentation supporting the project, that are to be readily accessible in accordance with subsection (c) and at the public water system in accordance with subsection (b).

(m) Persons in violation of this rule are subject to enforcement and legal action under IC 13-30.

[As added at: 22 IR 2524.]

327 IAC 8-3.5-6 ----- General construction permit for water mains: responsible person

(a) A responsible person is described as follows:

(1) For a corporation, a responsible corporate officer. As used in this subsection, "responsible corporate officer" means:

(A) a president;

(B) a secretary;

(C) a treasurer;

(D) any vice president of the corporation in charge of a principal business function; or

(E) any other person who performs similar policy or decision making functions for the corporation.

(2) For a partnership or sole proprietorship, a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency or political subdivision thereof, either a principal executive officer or ranking elected official.

(4) For a limited liability company, a registered agent.

(b) A responsible person may be represented by a person in accordance with each of the following:

(1) The authorization is made in writing by a person described under subsection (a).

(2) The authorization specifies either an individual or a position having responsibility for the overall design and construction of the project, such as the position of project manager, professional engineer, superintendent, or position of equivalent responsibility (a duly authorized representative may thus be either a named individual or any individual occupying a named position).

(3) The written authorization is submitted to the commissioner with the NOI.

[As added at: 22 IR 2525.]

327 IAC 8-3.5-7 ----- General construction permit for water mains: certification

(a) The responsible person must sign and date the NOI, making the following certification, "I certify that I have reviewed and understand the applicability and eligibility requirements of this rule and that the water main proposed with the submission of this NOI meets the applicability and eligibility requirements of this rule. I also certify that the design and construction of this project will be performed under my direction or supervision to assure conformance with 327 IAC 8-3.5, and will meet all local rules or laws, regulations, and ordinances. The information submitted is, to the best of my knowledge and belief, true,

accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.".

(b) A responsible person's professional engineer who is representing the design aspects of the proposed project must sign and date the NOI, making the following certification, "I certify under penalty of law that the design of this project will be performed under my direction or supervision to assure conformance with 327 IAC 8-3.5 and that the plans and specifications will require the construction of said project to be performed in conformance with this rule. The design of the proposed project will meet all local rules or laws, regulations, and ordinances. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.".

(c) A responsible person's developer, resident project representative, or person who by other means is representing the construction aspects of the proposed project must sign and date the NOI, making the following certification, "I certify under penalty of law that the construction of this project will be performed under my direction or supervision to assure conformance with 327 IAC 8-3.5. The construction of the proposed project will meet all local rules or laws, regulations, and ordinances. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.".

(d) The responsible person representing the public water system for which the water main is proposed must sign and date the NOI, making the following certification, "I certify under penalty of law that I agree to furnish water to the area in which the water main is proposed. I acknowledge the public water system's responsibility for examining the plans and specifications to determine that the proposed water main meets local rules or laws, and ordinances. I also acknowledge the public water system's responsibilities as outlined in 327 IAC 8-3.5-12. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.".

[As added at: 22 IR 2525.]

327 IAC 8-3.5-8 ----- General construction permit for water mains: general construction permit program ban

(a) The commissioner may issue a general construction permit program ban to a person or a public water system who has been issued a notice of violation from the commissioner or has entered into an agreed order with the commissioner as the result of noncompliance with this rule, 327 IAC 8-3, or 327 IAC 8-3.2 within the previous five (5) years of the commissioner's general construction permit ban issuance.

(b) The commissioner shall notify the person or the public water system in writing of such decision to impose a general construction permit program ban by certified mail, return receipt requested.

(c) A NOI received by the commissioner before the effective date of the general construction permit program ban is exempted from the general construction permit program ban.

(d) A person or a public water system aggrieved by the imposition of a general construction permit program ban may appeal the decision of the commissioner at a hearing held in accordance with IC 4-21.5.

(e) A general construction permit program ban may remain effective for a time period established by the commissioner not to exceed five (5) years.

(f) A person or public water system that has been issued a general construction permit program ban may apply for an individual construction permit in accordance with 327 IAC 8-3.

[As added at: 22 IR 2526.]

327 IAC 8-3.5-9 ----- General construction permit for water mains: effect of general permit rule

Compliance with the general construction permit rule does not:

(1) convey any property rights of any sort or any exclusive privileges;

(2) authorize any injury to persons or private property or invasion of other private rights or any infringement of federal, state, or local laws or regulations;

(3) substitute any duty to obtain other state or local approval or permits required by law for the proposed construction project; or

(4) construe as guaranteeing that the proposed construction project shall meet standards, limitations, or requirements of any agency of state or federal government.

[As added at: 22 IR 2526.]

327 IAC 8-3.5-10 --- General construction permit for water mains: modification, nontransferability, retraction, and expiration

(a) The information on the NOI may be modified with a written submittal of an amendment to the NOI received by the commissioner at least fifteen (15) calendar days before the commencement of the construction of the water main.

(b) A general construction permit may not be transferred.

(c) If a responsible person chooses not to commence construction of a water main that is the subject of a NOI, the responsible person must notify the commissioner of the decision.

(d) The proposed project for a general construction permit must commence within twelve (12) months of the submittal of the NOI. The commissioner may extend the duration upon receipt of a written request from the responsible person that states no changes have occurred with the NOI. Such request must be submitted using certified mail to the address on the NOI form and be received by the commissioner within twelve (12) months of the NOI submission.

[As added at: 22 IR 2526.]

327 IAC 8-3.5-11 ---- General construction permit for water mains: inspection and enforcement

(a) The commissioner may inspect any site, pursuant to IC 13-14-2-2 and IC 13-14-5, including the public water system, involved in the construction of a project regulated by this rule. The commissioner may take samples or test at any site involved in the construction of a project regulated by this rule.

(b) If the commissioner determines, based on the inspection of the NOI, plans or specifications, or the construction of the project, that the project does not comply with the general construction permit rule, the commissioner may do the following:

(1) Require the responsible person to undertake necessary action to achieve compliance with the general construction permit rule.

(2) Notify the responsible person of the commissioner's order of an immediate stop to the commencement or further progression of the construction of the project in the area of the noncompliance.

(3) Notify the responsible person of the commissioner's order of an immediate stop to the commencement or further progression of the construction of the entire project.

(4) Revoke the ability to construct with the general construction permit.

(c) Persons regulated by this rule shall furnish to the commissioner any information requested by the commissioner to determine compliance with this rule and whether cause exists for revoking approval to construct under this rule.

[As added at: 22 IR 2526.]

327 IAC 8-3.5-12 --- General construction permit for water mains: requirements for the public water system

(a) The public water system must maintain the information contained on each NOI and all documents submitted with each NOI for all water main construction with a general construction permit.

(b) The public water system must maintain the information contained on the plans and

specifications for each corresponding NOI for all water main construction with a general construction permit.

[As added at: 22 IR 2527.]

RULE 3.6. DEMONSTRATION OF NEW PUBLIC WATER SUPPLY SYSTEM CAPACITY

327 IAC 8-3.6-1 ----- Demonstration of new public water supply system capacity: definitions

In addition to the applicable definitions contained in IC 13-11-2, 327 IAC 8-3.2-1, and 327 IAC 8-3.4-1, the following definitions apply throughout this rule:

(1) "Financial capacity" means the ability of a public water supply system to acquire and manage sufficient financial resources to allow the system to achieve and maintain compliance with this article.

(2) "Managerial capacity" means the ability of a public water supply system to conduct its affairs in a manner enabling the system to achieve and maintain compliance with this article.

(3) "New public water supply system" means the following:

(A) A community water supply system or nontransient noncommunity water supply system that is newly constructed and will commence operation after October 1, 1999.

(B) A community water supply system or nontransient noncommunity water supply system that has not previously met the definition of a public water supply system but will have expanded infrastructure after October 1, 1999, to meet the definition of a public water supply system.

(C) A community water supply system, nontransient noncommunity water supply system, or transient water supply system that currently meets the definition of a public water supply system and expands its infrastructure after October 1, 1999, if such expansion results in a change in the classification of the system to a community water supply system or a nontransient noncommunity water supply system.

(4) "Technical capacity" means the physical and operational ability of a public water supply system to meet the requirements of this article.

[As added at: 22 IR 3678.]

327 IAC 8-3.6-2 ----- Demonstration of new public water supply system capacity: applicability

(a) This rule applies to a new public water supply system that commences operation after October 1, 1999.

(b) This rule does not apply to a public water supply system in operation prior to October 1, 1999, except as provided in section 1(3)(C) of this rule.

[As added at: 22 IR 3679.]

327 IAC 8-3.6-3 ----- Demonstration of new public water supply system capacity: water system management plan submission

(a) A new public water supply system shall submit to the commissioner a water system management plan that demonstrates the capacity of the proposed public water supply system. The plan shall include, at a minimum, an assessment of the following:

(1) Technical capacity according to section 4 of this rule.

(2) Financial capacity according to section 5 of this rule.

(3) Managerial capacity according to section 6 of this rule.

(b) Four (4) copies of the water system management plan shall be submitted to the commissioner in advance of the public water supply system's intended submission to the com-

missioner of application for a construction permit with sufficiency to allow the commissioner one hundred twenty (120) days for review of the water system management plan.

(c) Information requested by section 4, 5, or 6 of this rule that the applicant cannot provide shall be:

(1) identified as being not applicable or not available; and

(2) accompanied by an explanation of its absence.

(d) A written request by the commissioner for additional information from the applicant, due to an incomplete water system management plan, shall extend the one hundred twenty (120) days allowed for the commissioner's review.

[As added at: 22 IR 3679.]

327 IAC 8-3.6-4 ----- Demonstration of new public water supply system capacity: technical capacity of a new public water supply system

(a) A water system management plan shall provide the following technical capacity information:

(1) Details of the public water supply system that include the following:

(A) A description of the type of system, including:

(i) whether it is a community public water supply system or a nontransient noncommunity public water supply system and the basis for determining the system type; and

(ii) the population to be served.

(B) A description of the planned service area, including:

(i) the anticipated growth for the next twenty (20) years; and

(ii) the plans to provide for the demand of the anticipated growth.

(C) A description of the public water supply system by county, section, township, and range.

(D) A site plan that includes the location of the following, as applicable:

(i) Wells.

(ii) Surface water intakes.

(iii) Treatment facilities.

(iv) Storage facilities.

(v) Pumping facilities.

(vi) Connections to another public water supply system.

(vii) Other applicable facilities.

(E) A description, design basis, and anticipated useful life for treatment and transmission facilities, including the following:

(i) Treatment plants.

(ii) Pipes.

(iii) Pumping stations.

(iv) Storage facilities.

(F) The identification of interconnections with other systems.

(G) A description and design basis of the fire protection demand on the system.

(H) A description of a plan for metering water production by source and water use by consumers.

(I) A description of plans to manage waste generated by the treatment processes of the public water supply system.

(J) A description of the highest flood elevation at the site of sources and treatment facilities, if the site is within the one hundred (100) year frequency flood plain.

(2) Details of an assessment of the water supply source adequacy that include the

following:

(A) A site map for each water supply source that must be drawn to scale with the scale disclosed on the map.

(B) A narrative describing each source, and a description of land uses within a three thousand (3,000) foot radius of each water supply source.

(C) The design basis for system demands, including:

(i) average daily; and

(ii) peak daily;

consumer demand according to 327 IAC 8-3.3-2.

(D) An analysis of a proposed source to reliably meet consumer demand.

(E) A geological or hydrogeological characterization of the source of the drinking water supply.

(F) A summary of a source water quality analysis that includes the applicable primary and secondary drinking water standards.

(G) The proposed activities to protect source water.

(3) A public water supply system that proposes to purchase water from another public water supply system must provide documentation of a planned purchase agreement with the other public water supply system.

(4) A method to meet the requirements of the following public drinking water rules:

(A) 327 IAC 8-1 concerning drinking water direct additives and indirect additives.

(B) 327 IAC 8-2-8.5 concerning filtration and disinfection.

(C) 327 IAC 8-3 concerning public water supply construction permits.

(D) 327 IAC 8-3.4 concerning public water system wells.

(E) 327 IAC 8-4.1 concerning wellhead protection.

(F) 327 IAC 8-10 concerning cross connection control.

(5) A method to provide for the operation, maintenance, inspection, testing, repair, replacement, and associated record keeping for the following, according to the American Water Works Association Standards, Section A100 through Section F100 (February 1998 Edition)* and the Recommended Standards for Water Works, Great Lakes—Upper Mississippi River Board of State Public Health and Environmental Managers (1997 Edition)**:

(A) Source of supply facilities.

(B) Pumping facilities.

(C) Water meters.

(D) All components of the treatment process.

(E) Storage tanks, including the following:

(i) Cleaning.

(ii) Painting.

(F) Water mains, including the following:

(i) Flushing.

(ii) Exercising valves.

(G) Approved cross connection control devices.

(6) Details of an infrastructure replacement plan that include the following:

(A) A schedule of equipment replacement.

(B) Estimated life expectancy of equipment.

(C) Expected replacement date.

(D) Estimated cost of replacement.

(7) Details for providing a certified operator in charge of the public water supply system and complying with applicable state and federal requirements concerning certified operators, including 327 IAC 8-12.

(b) The technical capacity information required by subsection (a) shall:

(1) be prepared by:

(A) a professional engineer, as described under IC 25-31, who is registered in Indiana;

(B) a licensed professional geologist, as described in 305 IAC 1-2-5, who is registered in Indiana; or

(C) a qualified person under the direct supervision of a professional engineer or licensed professional geologist registered in Indiana;

as applicable according to the information required; and

(2) demonstrate that the proposed public water supply system shall produce drinking water that meets public water supply requirements of this article.

*This document is incorporated by reference. Notwithstanding language to the contrary in the primarily incorporated documents, the versions of all secondarily incorporated documents, which are those documents referred to in the primarily incorporated documents, shall be the versions in effect on the date of final adoption of the primarily incorporated document. Copies of this publication may be obtained from the American Water Works Association, 6666 West Quincy Avenue, Denver, Colorado 80235 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

**This document is incorporated by reference. Notwithstanding language to the contrary in the primarily incorporated documents, the versions of all secondarily incorporated documents, which are those documents referred to in the primarily incorporated documents, shall be the versions in effect on the date of final adoption of the primarily incorporated document. Copies of this publication may be obtained from Health Education Services, P.O. Box 7126, Albany, New York 12224 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

[As added at: 22 IR 3679.]

327 IAC 8-3.6-5 ----- Demonstration of new public water supply system capacity: financial capacity of a new public water supply system

(a) A new community public water supply system shall provide the following financial capacity information as part of the water system management plan:

(1) A five (5) year budget plan that includes the following:

(A) A pro forma income statement, balance sheet, statement of retained earnings, and statement of cash flows for each of the next five (5) years.

(B) An accounting of operating revenues for the following:

(i) Metered water revenues.

(ii) Unmetered water revenues.

(iii) Fire protection revenues.

(iv) Sales for resale.

(v) Other water revenues.

(C) An accounting of operating expenses for the following:

(i) Operation and maintenance, including the following:

(AA) Operating expenses by category.

(BB) The greater of depreciation or extensions and replacements.

(CC) Taxes other than income.

(DD) Operating income before income taxes.

(EE) Current federal income taxes.

(FF) Current state income taxes.

(GG) Deferred income taxes.

(HH) Income tax credits.

(II) Other charges and credits.

(JJ) Net operating income.

(KK) Debt service and debt service reserve, including an anticipated amortization schedule on any proposed borrowings.

(ii) Administration expenses, including the following:

(AA) Salaries.

(BB) Benefits.

(CC) Supplies.

(DD) Insurance.

(EE) Legal fees.

(FF) Engineering fees, studies, and plans.

(GG) Reporting requirements.

(HH) Accounting services.

(II) Costs to comply with other applicable state or local requirements.

(2) A twenty (20) year financial plan, in five (5) year increments, including the following:

(A) Projected growth and a description of the ability to meet expected growth.

(B) An infrastructure replacement plan, required by section 4(a)(6) of this rule, including funding of the plan.

(C) An account for funding necessary repairs to the proposed public water system to meet the drinking water standards and projected growth.

(b) A new nontransient noncommunity public water supply system shall submit a five (5) year budget plan that describes the public water supply system's source of revenue and ability to meet the costs associated with the public water supply system portion of the business, including the following:

(1) A summary of the revenues directed to the construction, operation, maintenance, and administration of the new nontransient noncommunity public water supply system.

(2) A detailed listing of the expenses associated with the construction, operation, maintenance, and administration of the new nontransient noncommunity public water supply system.

(c) The financial capacity information required by subsections (a) and (b) shall be prepared by a certified public accountant who is registered in Indiana.

[As added at: 22 IR 3681.]

327 IAC 8-3.6-6 ----- Demonstration of new public water supply system capacity: managerial capacity of a new public water supply system

A water system management plan shall provide the following managerial capacity information:

(1) A description of the organization, the purpose, the corporate status, and the nature of the entity, and its ownership that includes the following:

(A) Name of the owner of the public water supply system.

(B) Name of the following, where applicable:

(i) Chief executive officer.

(ii) Director.

(iii) Agency head.

(iv) Members of the board of directors.

(C) An organizational structure chart showing the following:

(i) The chain of command.

(ii) Other aspects of management related to operation.

(D) An assessment of the job responsibilities and estimated time commitment in hours for each management job position.

(2) A description of the ability to respond to an emergency situation that includes the following:

(A) Identification of:

(i) risks, whether they be:

(AA) known;

(BB) potential;

(CC) natural in origin; or

(DD) human caused;

(ii) staff members, by job position, that are responsible to act in response to risks; and

(iii) the risk response actions to be taken by staff.

(B) Notification procedures to be implemented during an emergency.

(C) A means to obtain an alternate water supply.

(D) The existence and limits of casualty insurance.

(3) An assessment of consolidation with or interconnection to another public water supply system, including the following:

(A) A narrative describing:

(i) the accessibility to another public water supply system;

(ii) efforts by a proposed public water supply system to notify other operating public water supply systems, within a ten (10) mile radius, that there is a proposal to develop a new public water supply system;

(iii) the response to notification required by item (ii); and

(iv) whether an agreement can be obtained for consolidation with or interconnection to an operating public water supply system within a ten (10) mile radius.

(B) A cost benefit analysis comparing:

(i) development of a new public water supply system;

(ii) consolidation with an existing public water supply system; and

(iii) interconnection with an existing public water supply system.

(C) The information required by this subdivision shall be prepared by a professional engineer, as described under IC 25-31, who is registered in Indiana, or by a qualified person under the direct supervision of a professional engineer registered in Indiana.

(4) An assessment of authority and responsibility, including the following:

(A) A narrative describing proposed policies, ordinances, rules, or regulations, that, at a minimum, define the following:

(i) Conditions required for providing water service for existing or new connections.

(ii) Responsibilities of the public water supply system to the consumer.

(iii) Responsibilities of the consumer to the public water supply system.

(B) A summary of existing local, state, or federal requirements pertaining to and

explaining the effects upon the proposed public water supply system.

(5) A description of the following:

(A) The minimum required qualifications for the following staff:

(i) Owners.

(ii) Directors.

(iii) Managers.

(iv) Operators.

(v) Other responsible persons.

(B) A proposal for continuing training.

[As added at: 22 IR 3681.]

327 IAC 8-3.6-7 ----- Demonstration of new public water supply system capacity: certification of capacity

(a) The commissioner shall do the following:

(1) Review a water system management plan that contains the following:

(A) The information required by this rule.

(B) A statement signed by the owner or person in responsible charge of the public water supply system attesting to having reviewed and to understanding the contents of the water system management plan.

(2) Deny the water system management plan and return it to the applicant if the plan fails to demonstrate the technical, financial, or managerial capacity of the proposed public water supply system.

(3) Issue a written determination that the public water supply system has met the technical, financial, and managerial capacity requirements of this rule.

(b) The commissioner may contact the applicant, by letter, to request omitted or supplemental information that is related to the water system management plan of the public water supply system.

[As added at: 22 IR 3682.]

RULE 4. APPROVAL OF PUBLIC WATER SUPPLY PLANS

327 IAC 8-4-1 ------- Approval of public water supply plans: approval by board

(a) No city, town, county, public institution, firm, corporation, or officer or employee thereof, or other person, shall install or contract for the construction of any public water supply facilities, including water purification or treatment works, or make any material change in any such existing facilities or works, until plans and specifications, together with an engineer report supporting in detail the design set forth in such plans, shall have been submitted to and approved by the commissioner, so far as relates to their sanitary features.

(b) After such plans and specifications have been approved by the commissioner, no material changes in the location, plans, construction, or operation of any such system or works may be made without first submitting to the commissioner a detailed statement of such proposed changes and receiving its approval.

(c) Said plans, specifications, reports and other information shall be submitted of such form and contents as may from time to time be specified by the commissioner.

(d) Whenever information regarding already existing water supply facilities or water treatment works, or regarding the operation and maintenance thereof, may be required by the commissioner, the public officials, or person, firm, or corporation having the works in charge shall promptly furnish such information.

(e) All such plans hereafter to be submitted to the commissioner for approval, shall have been prepared by or under the supervision of a professional engineer legally registered in the state of Indiana, be certified by him and bear his official seal.

(f) Provided, that nothing contained in this rule (327 IAC 8-4) shall apply to water supplies installed, or to be installed in connection with a private dwelling or residence.

RULE 4.1. WELLHEAD PROTECTION

327 IAC 8-4.1-1 ----- Wellhead protection: definitions

In addition to the definition in IC 13-11-2-43, the following definitions apply throughout this rule:

(1) "Aquifer" means an underground geological formation that has the ability to receive, store, and transmit water in amounts sufficient for the satisfaction of any beneficial use.

(2) "Best management practices" means schedules of activities, prohibitions of practice, treatment requirements, operation and maintenance procedures, use of containment facilities, and other management practices to prevent or reduce the pollution of waters of the state.

(3) "Calibration" means the process of refining the model representation of the hydrogeologic framework, hydraulic properties, and boundary conditions to achieve a desired degree of correspondence between the model simulation and observations of the ground water flow system.

(4) "Certified professional geologist" means a professional geologist certified by the state of Indiana under IC 25-17.6-1.

(5) "Community public water supply system" or "CPWSS" means a public water supply system that serves at least fifteen (15) service connections used by year-round residents or regularly serves at least twenty-five (25) year-round residents.

(6) "Conceptual model" means a description of the hydrogeologic system that represents the movement of ground water, for example:

(A) geologic and hydrologic framework;

(B) media type;

(C) physical processes;

(D) hydraulic properties; and

(E) water budget.

(7) "Confined aquifer" means an aquifer in which ground water is confined under pressure that is significantly greater than atmospheric pressure.

(8) "Critical water users" means water users whose immediate health or welfare would be affected in an adverse manner if water use is denied.

(9) "Customers" means number of persons served by the public water supply system.

(10) "Delineation" means a process used to define boundaries of the wellhead protection area.

(11) "Department" means the department of environmental management created under IC 13-13-2.

(12) "Emergency condition" means a condition related to ground water contamination which threatens to disrupt water supply service from a community public water supply system wellfield.

(13) "Hydrogeology" means the study of the geology of ground water, with particular emphasis on the chemistry and movement of water.

(14) "Hydrostratigraphic unit" means a grouping of geologic units of similar hydrogeologic properties, for example, aquifers and confining units.

(15) "Large community public water supply system" means a public water supply system serving greater than fifty thousand (50,000) customers.

(16) "Medium community public water supply system" means a public water supply system serving from three thousand three hundred one (3,301) up to and including

fifty thousand (50,000) customers.

(17) "Model" means an investigative technique using a mathematical or physical representation of a system or theory that accounts for all or some of its known properties.

(18) "Pesticide review board" means the Indiana pesticide review board created by IC 15-3-3.5 to collect, analyze, and interpret information on matters relating to the use of pesticides.

(19) "Potential source of contamination" means a facility, site, practice, or activity that possesses the ability to contaminate ground water.

(20) "Public water supply system" or "PWSS" means a public water supply for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen (15) service connections or regularly serves of *[sic.]* at least twenty-five (25) individuals daily at least sixty (60) days out of the year. The term includes any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system and any collection or pretreatment storage facilities not under such control that are used primarily in connection with such system.

(21) "Qualified ground water scientist" means an individual who possesses a bachelor's degree or higher in the physical sciences, for example, geology or engineering, with a sufficient level of experience to make sound professional judgments regarding site characterization and hydrogeology. This level of experience may be demonstrated by certification or registration as a professional geologist or engineer, either of whom shall have education or professional experience in hydrogeology or ground water hydrology.

(22) "Sanitary setback" means an area established around a CPWSS production well to protect ground water from direct contamination.

(23) "Small community public water supply system" means a public water supply system serving up to and including three thousand three hundred (3,300) customers.

(24) "State chemist" means the office of the Indiana state chemist authorized by IC 15-3-3.5 and IC 15-3-3.6 to administer the use, application, storage, mixing, loading, transportation, and disposal of pesticides in Indiana under those chapters.

(25) "Time of travel" or "TOT" means the calculated length of time a particle of water takes to reach a CPWSS production well from a certain point.

(26) "Time of travel (TOT) threshold" means a threshold determined by the community or CPWSS to suit the hydrogeologic conditions and needs of the community; however, a minimum five (5) year TOT for modeled wellhead protection areas and three thousand (3,000) feet for fixed radius wellhead protection area is allowed.

(27) "Wellhead protection area" or "WHPA" means the surface and subsurface area, delineated by fixed radius, hydrogeological mapping, analytical, semianalytical, or numerical flow/solute transport methods, which contributes water to a CPWSS production well or wellfield and through which contaminants are likely to move through and reach the well within a specified period.

(28) "Wellhead protection program" or "WHPP" means a program to sustain drinking water quality in ground waters that supply public water supply wells and wellfields. The program is mandated by the 1986 amendments to the federal Safe Drinking Water Act, Title II, Section 205, Subsection 1428.

(29) "Well log" means a drilling record that describes the subsurface formations that have been drilled through and gives details of well completion as required by IC 25-39-4 and 310 IAC 16-2-6.

[As amended at: 23 IR 1627.]

327 IAC 8-4.1-2 ----- Wellhead protection: applicability of rule

The WHPP is required for each well or wellfield providing ground water to a CPWSS.

[As added at: 20 IR 1724.]

327 IAC 8-4.1-3 ----- Wellhead protection: enforcement

This rule may be enforced through administrative or judicial proceedings under IC 13-30-3 and the penalty provisions of IC 13-14-2, IC 13-30-4, and IC 13-30-6.

[As added at: 20 IR 1724.]

327 IAC 8-4.1-4 ----- Wellhead protection: local planning teams

(a) The CPWSS shall coordinate and form or participate in a local planning team (LPT) to guide the development and implementation of the CPWSS's WHPP.

(b) The local planning team must have representation of parties that may be affected by the development and implementation of the WHPP.

(c) The CPWSS must public notice the formation of a local planning team in the newspaper of largest general circulation within the area where the LPT is being formed.

[As added at: 20 IR 1724.]

327 IAC 8-4.1-5 ----- Wellhead protection: criteria for selecting the delineation method for determining the wellhead protection area

(a) During Phase I of the WHPP, the CPWSS must delineate the WHPA using one (1) of the five (5) accepted methods of delineation.

(b) Any CPWSS may use the following methods:

(1) The analytical method.

(2) The numerical flow/solute transport model methods.

(3) The semianalytical method.

(c) A CPWSS may use the hydrogeologic mapping method as set out in the "Guidelines for Delineation of Wellhead Protection Areas"* as the sole method of delineation with prior approval from the department.

(d) A CPWSS may use the fixed radius method after receiving prior approval from the department. Approval to use the fixed radius method is based on either of the following criteria:

(1) A CPWSS does not qualify as a significant water withdrawal facility (in accordance with IC 14-25-7).

(2) A CPWSS qualifies as a significant water withdrawal facility, in accordance with IC 14-25-7, and the average daily withdrawal is less than one hundred thousand (100,000) gallons per day demonstrated by:

(A) submittal of annual total pumping data for the previous five (5) years of operation to the department; and

(B) statistical determination by the department of an upper confidence interval of one hundred thousand (100,000) gallons per day or less by the following formula:

$$\bar{x} = t_{(0.95,n-1)}(S/n^{1/2})$$

$\bar{x}$ = Mean of pumping data
S = Standard deviation of pumping data
$t_{(0.95,n-1)}$ = t statistic at 95%, n degrees of freedom
n = Number of observations

(e) Upon selecting and carrying out a delineation method, a CPWSS must submit justifying data in accordance with section 8 of this rule.

(f) All delineation methods available to CPWSSs for defining the WHPA are outlined

within "Guidelines for Delineation of Wellhead Protection Areas"*.

(g) Site characterization and WHPA delineation, using either the modeling methods, described in subsection (b), or hydrogeological mapping methods described in subsection (c), must be performed by a qualified ground water scientist.

*"Guidelines for Delineation of Wellhead Protection Areas", United States Environmental Protection Agency, Office of Ground Water Protection, Washington, D.C. 20460, June 1987, EPA Publication No. 440/5-93-001. Copies of "Guidelines for Delineation of Wellhead Protection Areas" are available at the Indiana Department of Environmental Management, Office of Water Management, Drinking Water Branch, Ground Water Section, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana 46206-6015.

[As added at: 20 IR 1724.]

327 IAC 8-4.1-6 ----- Wellhead protection: map requirements

(a) All maps required by this rule, except topographic maps, must be drawn to a scale between 1" = 400' and 1" = 1,000'.

(b) All topographic maps required by this rule must be United States Geological Survey (USGS) seven and one-half (7.5) minute series.

[As added at: 20 IR 1725.]

327 IAC 8-4.1-7 ----- Wellhead protection: delineation

(a) If a CPWSS delineates the WHPA using a model, a report with a narrative description of the regional hydrogeologic setting, the conceptual model, and modeling efforts must be submitted. The report must include the following:

(1) Analysis of hydrogeologic setting and the conceptual model including the following:

(A) Map of the area of interest.

(B) Review of published hydrogeologic and geologic interpretations over the area of interest.

(C) Geologic cross sections showing the following:

(i) Hydrostratigraphic units.

(ii) Water levels.

(iii) Relationship of surface water bodies to the hydrostratigraphic units.

(iv) Pumping wells with screened intervals.

(D) Well logs and records used in cross section development. If the number of well logs used in cross section development is greater than fifty (50), the maximum number of well logs submitted to represent the cross section(s) may be negotiated with the department.

(E) A map that illustrates over the area of interest the following:

(i) Location of CPWSS wells.

(ii) Location of high capacity wells registered as significant water withdrawal facilities as defined in IC 14-25-7.

(iii) Surface water features.

(iv) Thickness and extent of hydrostratigraphic units.

(v) Regional water levels.

(vi) Bedrock topography.

(F) Summary of raw data used in the development of the conceptual model.

(G) Discussion of hydrogeologic parameters.

(H) Discussion of the ground water flow system, including the following:

(i) Distribution of recharge.

(ii) Current CPWSS pumping rates and planned changes in pumping rates.

(iii) Pumping rates of neighboring high capacity wells.

(2) Presentation and discussion of the modeling effort must include the following:

(A) The rationale for delineation method selection.

(B) A tabulated summary of the model input parameters showing the range over which the parameters were varied.

(C) An example input file.

(D) A map showing the following:

(i) The domain of the modeled area within the area of interest.

(ii) Location of any boundary conditions used.

(iii) Calibration target locations if used.

(iv) Modeled potentiometric surfaces.

(v) Resultant WHPA boundaries.

(E) Discussion of the following:

(i) Assumptions used in the modeling effort.

(ii) Changes made to initial conditions.

(iii) Calibration analysis if used.

(iv) Water budget of the model if available.

(v) Effects of uncertainty in input parameters and boundary conditions on modeled WHPA boundaries.

(b) A CPWSS that, after approval from the department, delineates the WHPA using the fixed radius method must submit the following data to the department:

(1) A map depicting the following:

(A) The wellhead protection area boundary.

(B) The CPWSS pumping well locations.

(C) The location of wells in the area registered as significant water withdrawal facilities as defined in IC 14-25-7.

(2) A topographic map of the area.

(3) Well logs for the CPWSS pumping well.

(c) A CPWSS that delineates the WHPA using the hydrogeologic mapping method must submit data as set out in the "Guidelines for Delineation of Wellhead Protection Areas"* and agreed to by the department and the CPWSS.

*"Guidelines for Delineation of Wellhead Protection Areas", United States Environmental Protection Agency, Office of Ground Water Protection, Washington, D.C. 20460, June 1987, EPA Publication No. 440/5-93-001. Copies of "Guidelines for Delineation of Wellhead Protection Areas" are available at the Indiana Department of Environmental Management, Office of Water Management, Drinking Water Branch, Ground Water Section, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana 46206-6015.

[As added at: 20 IR 1725.]

327 IAC 8-4.1-8 ----- Wellhead protection: phase I submittal requirements

To have Phase I of a WHPP approved by the department, a CPWSS must submit the following material as prescribed in section 16 of this rule:

(1) The names and affiliations of the members of the local planning team, as well as any subcommittees designated by the local planning team.

(2) A complete WHPA delineation as described in section 7 of this rule. Items submitted in compliance with section 7(a)(1)(C), 7(a)(1)(E)(iv), 7(a)(1)(E)(vi), and 7(c) of this rule must be performed by or under the supervision of a certified professional geologist and bear his/her seal. Items submitted in compliance with section 7(a)(1)(C), 7(a)(1)(E)(iv), 7(a)(1)(E)(vi), and 7(c) of this rule are exempt from certification by a certified professional geologist when performed by:

(A) an officer or employee of the United States government, state government, or local government while engaged in providing geological services for the officer's or employee's employers;

(B) a person engaged solely in geological research or instruction of geology; or

(C) a professional engineer registered under IC 25-31 who applies geology to the practice of engineering.

(3) An inventory of potential sources of contamination containing a complete list of existing facilities, sites, practices, and activities for both regulated and unregulated potential sources of contamination. The inventory of potential sources of contamination must be submitted in the following forms:

(A) A narrative description of land use within the WHPA.

(B) A land use map with potential sources of contamination plotted, showing their locations relative to the WHPA boundaries.

(C) A table containing information describing the potential sources of contamination, including the following:

(i) Facility identification number (cross-referenced to clause (B)).

(ii) Facility name and location.

(iii) Site description.

(iv) Any environmental permits issued for the site, including number and agency issuing the permit.

(v) Types of contaminants at site.

(vi) Operating status of site.

(4) A management plan that must include the following:

(A) A plan to manage the sanitary setback area that includes the following:

(i) Measures for the management of the area, consistent with the requirements of 327 IAC 8-3.

(ii) Measures to prohibit the storage and mixing of chemicals, other than:

(AA) those used for drinking water treatment; or

(BB) pesticides that are regulated by the pesticide review board through IC 15-3-3.5 and IC 15-3-3.6.

(iii) Provisions to secure the wellhead to prevent unauthorized access.

(iv) Guidelines that employ best management practices for transportation routes within the sanitary setback area.

(B) A plan to manage the WHPA that addresses the following:

(i) Management or monitoring measures for all potential sources of contamination as identified in subdivision (3) to effectively protect the ground water and drinking water supply. The management or monitoring measures must consider the locations and type of potential sources of contamination and hydrogeologic characteristics of the WHPA.

(ii) Compliance of CPWSS production wells with state construction standards and permit requirements under 327 IAC 8-3 and 310 IAC 16.

(iii) Monitoring for contaminants associated with identified potential sources of contamination according to the department's standardized monitoring framework under 327 IAC 8-2.

(iv) Methods or procedures for maintaining and updating records concerning changes to potential sources of contamination within the WHPA.

(v) Identification of abandoned wells not in compliance with IC 25-39-4-6 and 310 IAC 16-10.

(vi) Use, application, storage, mixing, loading, transportation, and disposal of pesticides in accordance with IC 15-3-3.5, IC 15-3-3.6, and the rules and

guidance thereunder, developed by the pesticide review board and the state chemist.

(vii) Notification of property owners, mineral owners and leaseholders of record that they are located within a WHPA.

(viii) Provide owners and operators of identified potential sources of contamination access to a copy of the local WHPP.

(ix) The establishment of a public outreach program to educate the public and owners or operators of identified potential sources of contamination about the consequences of ground water contamination, and the methods available for preventing ground water contamination.

(x) The posting of wellhead protection signs along major thoroughfares at the perimeter of the WHPA.

(xi) Other management measures required to comply with this section.

(5) A contingency plan to provide safe drinking water in emergency conditions must include the following:

(A) Description of plan to train local responders.

(B) Description of emergency response to leaks, spills, or illegal discharges.

(C) A list of information to be provided to local responders, including the following:

(i) Location of WHPA boundaries.

(ii) CPWSS operators to contact during an emergency.

(iii) A twenty-four (24) hour telephone number for the following:

(AA) IDEM, office of emergency response.

(BB) State, local, and city/county police.

(CC) State, local, and city/county fire/hazmat team.

(DD) City or county disaster services agency.

(EE) Water supply owner, superintendent, and operator.

(FF) City or county hospital.

(D) Identification and description of potential alternate sources of water.

(E) Identification of procedures and description of methods to notify critical water users of an emergency.

(F) The posting of procedures to follow in an emergency and information on the location and availability of the complete contingency plan.

[As added at: 20 IR 1726.]

327 IAC 8-4.1-9 ----- Wellhead protection: phase II submittal requirements

To have Phase II of a WHPP approved by the department, a CPWSS must submit the following material within the time frame prescribed in section 16 of this rule:

(1) Phase II delineation must include the following:

(A) An updated Phase I submittal reflecting changes, if any.

(B) A discussion describing how the updated WHPA compares with the previously delineated WHPA.

(2) Phase II potential sources of contamination inventory must include an update to the source inventory provided in the Phase I submittal.

(3) Phase II management plan must include the results of the implementation of Phase I management plan.

(4) Phase II contingency plan must include documentation of training given to local responders.

[As added at: 20 IR 1727.]

327 IAC 8-4.1-10 --- Wellhead protection: department review of phase I and phase II submittal requirements

(a) The department shall review Phase I and Phase II submittals based on the following criteria:

(1) WHPA delineation, including the following:

(A) The completeness and accuracy of the data used to determine the hydrogeologic conceptualization as required in section 7 of this rule.

(B) The information provided in the submittal demonstrates that the chosen delineation method properly accounts for site specific hydrogeology.

(2) Potential sources of contamination inventory, including the following:

(A) The completeness of the specific data supplied regarding each facility, site, practice, and activity, including the following:

(i) The inventory, identification, and location of all potential sources of contamination according to the data requirements of section 8(3) of this rule.

(ii) Identification of all potential sources of contamination in the WHPA on a map that includes the boundaries of the time of travel.

(iii) Characterization of the potential sources of contamination as specified in section 8(3)(C) of this rule is sufficient to develop a management plan as prescribed by section 8(4)(A) and 8(4)(B) of this rule.

(B) The department shall evaluate Phase II based on the completeness of the update to adequately characterize the status of all potential sources of contamination identified and inventoried under Phase I, and any new potential sources of contamination that have located within the WHPA.

(C) The department shall evaluate the updates made to the potential sources of contamination inventory every five (5) years, as required by section 9(2) of this rule, for completeness with respect to the status of all potential sources of contamination identified in the Phase I and Phase II submittals.

(3) Management plan including the following:

(A) The Phase I management plan will be considered effective when all management plans and submittal requirements of section 8(4)(A) and 8(4)(B) of this rule and subdivision (1) have been met. The management plan must consider the following:

(i) Site-specific hydrogeology.

(ii) Land use.

(iii) Conditions of potential sources of contamination.

(B) The department will approve Phase II, results of implementation of Phase I, upon finding that the management plan has been implemented as proposed under section 8(4)(B) of this rule.

(b) Under Phase I, the department may require the use of a different delineation method. Under both Phase I and Phase II, the department may require submittal of additional data to support information provided as part of the WHPP.

(c) For a CPWSS using the fixed radius method to delineate a WHPA, the department may require the use of a different delineation method if the CPWSS fails to maintain the qualification for use of the fixed radius method as outlined in section 5(d) of this rule.

[As added at: 20 IR 1727.]

327 IAC 8-4.1-11 ---- Wellhead protection: tracking of potential sources of contamination inventory and management plan

(a) The department shall track Phase I accomplishments by mailing two (2) surveys to each CPWSS as follows:

(1) The first survey shall be mailed two (2) years, and the second shall be mailed one (1) year, prior to the deadline for Phase I submittal for a large CPWSS.

(2) The first survey shall be mailed two and one-half (2 1/2) years, and the second survey shall be mailed one (1) year, prior to the deadline for Phase I submittal, for a medium CPWSS.

(3) The first survey shall be mailed three (3) years, and the second survey shall be mailed one (1) year, prior to the deadline for Phase I submittal, for a small CPWSS.

(b) The department shall track Phase II progress by sending an additional survey, that includes an update of the potential sources of contamination inventory, to each CPWSS two (2) years before the Phase II requirements must be submitted to the department as follows:

(1) The survey shall be mailed three (3) years after the department's approval of the Phase I submittal for a large CPWSS.

(2) The survey shall be mailed five (5) years after the department's approval of the Phase I submittal for a medium CPWSS.

(3) The survey shall be mailed eight (8) years after the department's approval of the Phase I submittal for a small CPWSS.

(c) Continued tracking of management plans will begin five (5) years after the department's approval of the Phase II submittal and will continue in five (5) year cycles as long as the CPWSS is in operation.

(d) Any CPWSS that has not applied for approval of the WHPP within the designated period set forth in section 16 of this rule will be considered in noncompliance.

(e) All surveys must be completed and submitted to the department within forty-five (45) days of receipt.

[As added at: 20 IR 1728.]

327 IAC 8-4.1-12 --- Wellhead protection: submittal requirements for proposed new wells

(a) For a proposed well site in a department approved Phase I or Phase II WHPP, with the proposed well included in the WHPA delineation, the CPWSS shall apply for a construction permit, as provided for in 327 IAC 8-3, and shall describe the proposed well site in relation to the approved WHPA.

(b) For a proposed well site in a department approved Phase I or Phase II WHPP, with the proposed well not included in the WHPA delineation, the CPWSS shall apply for a construction permit as provided for in 327 IAC 8-3, and shall submit new well site submittal requirements as described in section 13 of this rule.

(c) For a proposed well site in a wellfield not in a department approved Phase I or Phase II WHPP, the CPWSS must apply for a construction permit as provided for in 327 IAC 8-3, and shall submit new well site submittal requirements as described in section 13 of this rule.

[As added at: 20 IR 1728.]

327 IAC 8-4.1-13 --- Wellhead protection: new well site submittal requirements

(a) All CPWSSs subject to this rule must receive approval for a new well site and shall submit the following:

(1) A United States Geological Survey seven and one-half (7.5) minute series topographic map illustrating the area surrounding the well and proposed well site.

(2) A detailed map, drawn to a scale between 1" = 400' and 1" = 1,000', showing the following:

(A) Proposed well site with ownership or easement boundaries.

(B) The location of the proposed well.

(C) The sanitary setback area.

(3) A WHPA delineated using the following:

(A) Fixed radius method, with a radius of three thousand (3,000) feet, regardless of the pumping capacity of the system.

(B) An analytical, semianalytical, or numerical model, executed by a qualified

ground water scientist, using input parameters calculated from:

(i) regional data from published reports; or

(ii) site-specific data.

(C) Any approved method described in section 5 of this rule.

(4) A potential sources of contamination inventory performed by methods outlined in section 8(3) of this rule.

(5) A summary of geologic and ground water quality information for the aquifer system utilized by a proposed well, where available.

(6) A schedule for the development of a Phase I WHPP.

(b) Approval of a CPWSS proposed well site is dependent on the ability of each CPWSS to provide safe drinking water, as determined by the department under 327 IAC 8-2.

(c) To maintain well site approval status, the CPWSS must meet the following requirements:

(1) Allow no new potential sources of contamination to locate within the sanitary setback area.

(2) The CPWSS is operated in such a manner that it will not violate any sanitary or health regulations or requirements.

(3) Maintenance of additional requirements specified by the CPWSS construction permit.

[As added at: 20 IR 1729.]

327 IAC 8-4.1-14 --- Wellhead protection: well site denial criteria

The department may deny a well site if:

(1) a source of chemical or pathogenic contamination is found within the sanitary setback area that is so severe that it cannot be consistently treated or managed to a level considered safe by standards under 327 IAC 8-2; or

(2) a chemical or pathogenic contaminant reported in the ground water quality information submitted under section 13(b)(6) of this rule is so severe that it cannot be consistently treated or managed to a level considered safe by standards under 327 IAC 8-2.

[As added at: 20 IR 1729.]

327 IAC 8-4.1-15 --- Wellhead protection: alternative approaches to WHPP

(a) The department may approve alternate approaches to section 8(4)(A) of this rule upon a showing that water from a well or wellfield providing ground water to a CPWSS exceeds the standard for conventional ground water treatment as set forth in 327 IAC 8-2.

(b) In reviewing the alternative management plan under this section, the department shall consider whether the proposed alternative management plan will result in the consistent provision of finished water in compliance with 327 IAC 8-2.

[As added at: 20 IR 1729.]

327 IAC 8-4.1-16 --- Wellhead protection: community public water supply systems submittal deadlines; department approval deadlines

(a) Each CPWSS must submit all materials required by this rule as follows: (See Table 1 in subsection (c).)

(1) Phase I submittals are as follows:

(A) All materials must be submitted within three (3) years for large CPWSS.

(B) All materials must be submitted within four (4) years for medium CPWSS.

(C) All materials must be submitted within five (5) years for small CPWSS.

(2) Phase II submittals are as follows:

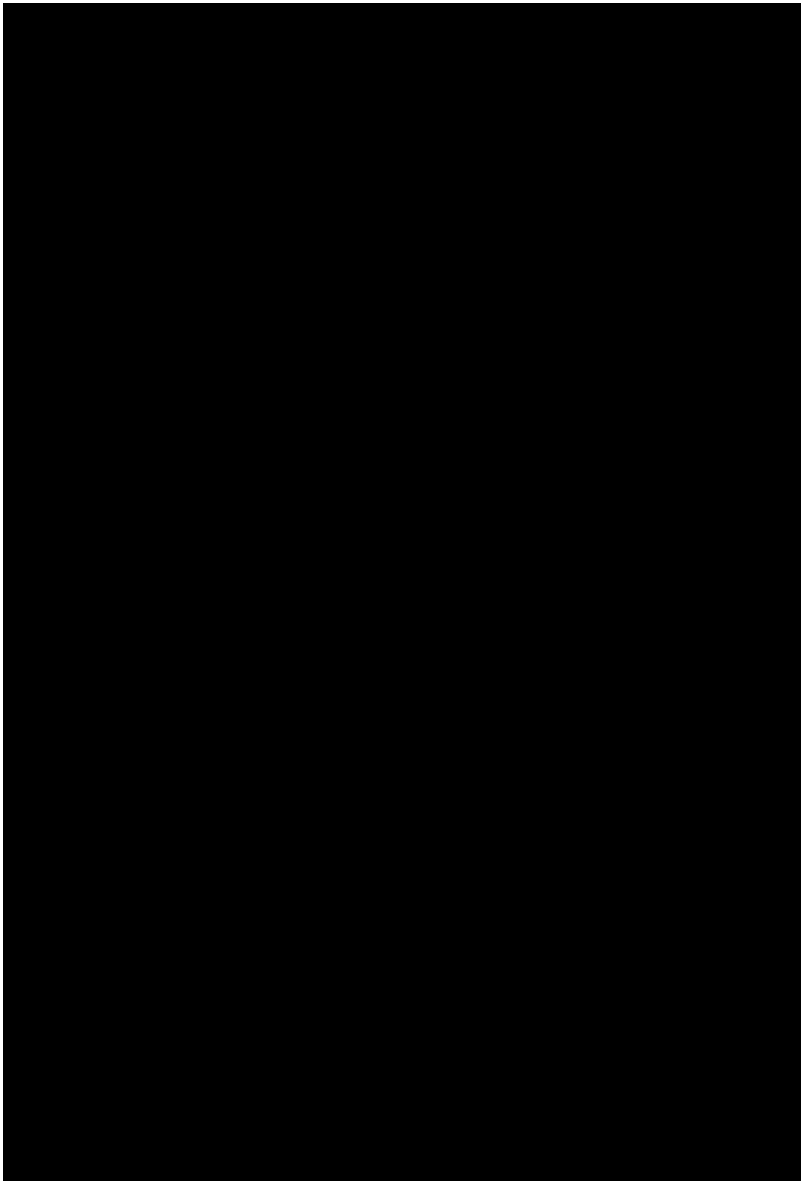
(A) All materials must be submitted within five (5) years after department approval of Phase I material for large CPWSS.

(B) All materials must be submitted within seven (7) years after department approval of Phase I material for medium CPWSS.

(C) All materials must be submitted within ten (10) years after department approval of Phase I material for small CPWSS.

(b) The department will approve or disapprove the materials submitted within one hundred eighty (180) days after submission.

(c) The wellhead protection overview shall be as follows:



[As amended at: 21 IR 1729.]

RULE 5. CONSTRUCTION OF PUBLIC WATER SUPPLY SYSTEMS UNDER ORDER OF IDEM

327 IAC 8-5-1 ------- Construction of public water supply systems under order of IDEM: order and hearing

(a) Whenever investigation by the commissioner shall show that the lack of proper or adequate public water supply system, in an incorporated city or town, results in insanitary conditions, or conditions causative of disease, and that the construction of a public water supply system, will abate, and is a practical method to abate such conditions, said incorporated city or town shall, upon receipt of an official order from the commissioner, immediately proceed to construct, cause to be constructed, or allow to be constructed, a public water supply system, including a source of supply, distribution lines and other necessary appurtenances, sufficient to abate the insanitary conditions causative of disease and to protect the public health.

(b) Provided, that such official order shall not be issued by the commissioner until after an opportunity for a hearing has been given to the proper officials of such incorporated city or town, at which hearing the facts as shown by the investigation made by the commissioner shall be presented to said officials.

RULE 6. IMPROVEMENTS OF PUBLIC WATER SUPPLY SYSTEMS OR TREATMENT WORKS UNDER ORDER OF IDEM

327 IAC 8-6-1 ------- Improvements of public water supply systems or treatment works under order of IDEM: order and hearing

(a) Whenever investigation by the commissioner shall show any public water supply system, or water treatment works, or any part thereof to be inadequate, or to be improperly located, constructed or operated, and by reason thereof to be causative of disease, or that the water obtained therefrom fails to meet the drinking water standards of 327 IAC 8-2, the person, firm, corporation or municipally *[sic.]* owning and/or operating said public water supply system or water treatment works, upon receipt of an official order from the commission, shall proceed within such time as is therein provided to carry out such changes, extensions or improvements, or to institute such changes in the methods of operation of said public water supply system or water treatment works as may be necessary to abate such conditions.

(b) Any order of the commissioner shall be a written order and shall establish a time within which the steps contemplated in said order shall be carried out.

(c) Provided, that such official order shall not be issued by the commissioner until an opportunity for a hearing has been given to the person, firm, corporation or municipality owning and/or operating said public water supply system or water treatment works, at which hearing the facts as shown by the investigation made by said commissioner shall be presented to said person, firm, corporation or municipality. Notice of such hearing shall be given not less than ten (10) days prior to the date set for said hearing.

RULE 10. CROSS CONNECTIONS; CONTROL; OPERATION

327 IAC 8-10-1 ------ Cross connections; control; operation: definitions

In addition to the definitions contained in IC 13-11-2 and 327 IAC 1, the following definitions apply throughout this rule:

(1) "Air gap" means an unobstructed vertical distance through atmosphere between the discharge end of a pipeline supplied from a public water supply and the overflow rim of the receiving portion of the customer water system.

(2) "Backflow" means the flow of water or contaminants into the public water supply distribution system from a source other than the public water supply.

(3) "Booster pump" means a pump installed on a pipeline to increase water pressure or flow.

(4) "Commissioner" means the commissioner of the Indiana department of environmental management, or the commissioner's authorized representative.

(5) "Cross connection" means any physical arrangement, including cross connection control devices not in working order, whereby a public water supply distribution system is directly connected, either continuously or intermittently, with any secondary source of supply, sewer, drain, conduit, pool, piping, storage reservoir, plumbing fixture, or other device which contains, or may contain, and is capable of imparting to the public water supply, contaminants, contaminated water, sewage, or other waste or liquid of unknown or unsafe quality.

(6) "Cross connection control device" means any device or assembly, approved by the commissioner for construction on or installation in water supply piping, which is capable of preventing contaminants from entering the public water supply distribution system.

(7) "Cross connection control device inspector" means a person who has:

(A) successfully completed training in testing and inspection of cross connection control devices from a training provider approved by the commissioner;

(B) received a registration number from the commissioner; and

(C) not been notified by the commissioner that the registration number has been revoked in accordance with section 11(b) of this rule.

(8) "Cross connection hazard" means any customer facility which, because of the nature and extent of activities on the premises or the materials used in connection with the activities or stored on the premises, would present an immediate or potential danger or health hazard to customers of the public water supply should backflow occur.

(9) "Customer" means any person who receives water from a public water supply.

(10) "Customer service line" means the pipeline from the public water supply to the:

(A) first tap, fixture, receptacle, or other point of customer water use; or

(B) secondary source of supply or pipeline branch in a building.

(11) "Customer water system" means all piping, fixtures, and appurtenances, including secondary sources of supply, used by a customer to convey water on his premises.

(12) "Double check valve assembly" means a device or assembly composed of two (2) tightly closing shut-off valves surrounding two (2) independently acting check valves, with four (4) test cocks, one (1) upstream of the four (4) valves and one (1) between each of the four (4) check and shut-off valves.

(13) "Downstream" means the direction of flow when only the public water supply is supplying water through the customer water system and backflow is not occurring.

(14) "Pressure vacuum breaker" means a device or assembly containing an independently operating internally loaded check valve and an independently operating loaded air inlet valve located on the downstream side of the check valve for relieving a vacuum or partial vacuum in a pipeline.

(15) "Public water system" means a public water supply for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen (15) service connections or regularly serves at least twenty-five (25) individuals daily at least sixty (60) days out of the year. The term includes any collection, treatment, storage, and distribution facilities under control of the operator of such system, and used primarily in connection with such system and any collection or pretreatment storage facilities not under such control that are used primarily in connection with such system.

(16) "Reduced pressure principle backflow preventer" means a device composed of two (2) tightly closing shut-off valves surrounding two (2) independently acting pressure reducing check valves that, in turn, surround an automatic pressure differential relief valve, and four (4) test cocks, one (1) upstream of the five (5) valves and one (1) between each of the four (4) check and shut-off valves. The check valves effectively divide the structure into three (3) chambers; pressure is reduced in each downstream chamber allowing the pressure differential relief valve to vent the center chamber to atmosphere should either or both check valves malfunction.

(17) "Registration number" means a unique number assigned to a person by the commissioner demonstrating that the person has fulfilled the education and examination requirements as described in section 11 of this rule and is recognized by the state as a cross connection control device inspector.

(18) "Secondary source of supply" means any well, spring, cistern, lake, stream, or other water source, intake structure, pumps, piping, treatment units, tanks, and appurtenances used, either continuously or intermittently, to supply water other than from the public water supply to the customer, including tanks used to store water to be used only for firefighting, even though the water contained therein is supplied from the public water supply.

(19) "Supplier of water" means any person who owns or operates a public water supply.

(20) "Training provider" means an organization that conducts or presents a cross connection control device inspector course approved by the commissioner in conformance with section 12 of this rule.

(21) "Upstream" means the direction of flow opposite to downstream.

[As amended at: 23 IR 1629.]

327 IAC 8-10-2 ------ Cross connections; control; operation: cross connection prohibited; bypass

No customer shall cause or allow the construction or maintenance of a cross connection. Piping installed to bypass a cross connection control device constitutes a cross connection unless the bypass piping is also fitted with a similar cross connection control device.

327 IAC 8-10-3 ------ Cross connections; control; operation: booster pump connection

No customer shall cause or allow the installation or maintenance of a booster pump in a public water system unless a device is installed to control operation of the booster pump when pressure to pump suction drops as follows:

(1) Wherever a fire suppression system has a booster pump installed only for fire suppression, it shall have an audible or visual alarm to provide warning when flow occurs and a control valve shall be installed on the booster pump discharge to automatically throttle the flow as necessary to maintain a minimum of ten (10) pounds per square inch, gauge, pump suction pressure.

(2) For all booster pumps other than those described in subdivision (1), a control device shall be installed to either prevent operation of the booster pump, or else to automatically throttle flow to or from the booster pump as necessary to maintain a minimum of twenty (20) pounds per square inch, gauge, pump suction pressure. The supplier of water may require that the control device be calibrated to maintain a higher than twenty (20) pounds per square inch, gauge, pump suction pressure, where necessary to provide a minimum pressure of twenty (20) pounds per square inch, gauge, throughout the pressure zone of the public water system distribution system to which the customer is connected.

[As amended at: 22 IR 2516.]

327 IAC 8-10-4 ------ Cross connections; control; operation: cross connection hazards; notice; exemptions

(a) Wherever a cross connection hazard as specified by subsection (c) is designated:

(1) an air gap shall be constructed or a reduced pressure principle backflow preventer shall be installed, in accordance with section 7 of this rule, on the customer service line for:

(A) any new facility;

(B) any modified customer service line; or

(C) any existing facility where a higher capacity meter is installed; and

(2) neither an air gap nor a reduced pressure principle backflow preventer shall be required to be incorporated into customer service lines that both are utilized solely for fire suppression and are fitted with an audible alarm that will activate when water is detected to be flowing in the customer service line.

(b) Customers who have a cross connection that has resulted in a contaminant being introduced into a public water system or a customer water system:

(1) shall immediately construct an air gap or install a reduced pressure principle backflow preventer on the customer service line in accordance with section 7 of this rule; or

(2) is exempt from the requirements of subdivision (1) because the affected customer service line is both utilized solely for fire suppression and is fitted with an audible alarm that will activate when water is detected to be flowing in the line.

(c) The following customer facilities are designated cross connection hazards:

(1) Aircraft and missile manufacturing plants.

(2) Automotive plants, including those plants that manufacture motorcycles, automobiles, trucks, recreational vehicles, and construction and agricultural equipment.

(3) Beverage bottling plants, including dairies and breweries.

(4) Canneries, packing houses, and reduction plants.

(5) Car washes.

(6) Chemical, biological, and radiological laboratories, including those in high schools, trade schools, colleges, universities, and research institutions.

(7) Hospitals, clinics, medical buildings, autopsy facilities, morgues, other medical facilities, and mortuaries.

(8) Metal and plastic manufacturing, fabricating, cleaning, plating, and processing facilities.

(9) Plants manufacturing paper and paper products.

(10) Plants manufacturing, refining, compounding, or processing fertilizer, film, herbicides, natural or synthetic rubber, pesticides, petroleum or petroleum products, pharmaceuticals, radiological materials, or any chemical that could be a contaminant to the public water supply.

(11) Commercial facilities that use herbicides, pesticides, fertilizers, or any chemical that could be a contaminant to the public water supply.

(12) Plants processing, blending, or refining animal, vegetable, or mineral oils.

(13) Commercial laundries and dye works, excluding coin-operated laundromats.

(14) Sewage, storm water, and industrial waste treatment plants and pumping stations.

(15) Waterfront facilities, including piers, docks, marinas, and shipyards.

(16) Industrial facilities that recycle water.

(17) Restricted or classified facilities (federal government defense or military installations), or other facilities closed to the supplier of water or to the commissioner.

(d) Customer facilities not designated as a cross connection hazard by subsection (c) may be designated a cross connection hazard by written notification from the commissioner to

the customer and to the customer's public water system. The notice shall specify the nature of the customer activity that necessitates designation of the customer's facility as a cross connection hazard, and the date by which the customer shall install a cross connection control device in accordance with section 7 of this rule, on the customer service line to the facility so designated.

(e) The commissioner may issue a letter exempting a customer from the requirements of subsection (a) if the customer can show to the satisfaction of the commissioner that the activities taking place at the customer's facility, and the materials used in connection with these activities or stored on the premises, cannot endanger the health of customers of the public water system should backflow occur. An exemption shall remain valid for no more than three (3) years from the date of issuance. If the commissioner finds that the customer facility has become a cross connection hazard, the commissioner will void the exemption and so notify the customer.

[As amended at: 22 IR 2516.]

327 IAC 8-10-5 ------ Cross connections; control; operation: secondary sources of supply; installation of air gaps or other devices

(a) Customers shall construct an air gap or install a reduced pressure principle backflow preventer or a double check valve assembly in accordance with section 7 of this rule, on the customer service line to:

(1) tanks used only to store water from the public water supply for fire suppression that are constructed to maintain the bacteriological quality of the water, in compliance with 327 IAC 8-2; or

(2) secondary sources of supply that:

(A) use well water as the only private source of supply;

(B) are constructed to maintain the bacteriological quality of the water, in compliance with 327 IAC 8-2; and

(C) produce, without treatment, water meeting the drinking water quality standards enumerated in 327 IAC 8-2.

(b) Customers shall construct an air gap or install a reduced pressure principle backflow preventer in accordance with section 7 of this rule on the customer service line to or into a facility having a secondary source of supply of a type other than those enumerated in subsection (a), that is used only for fire suppression.

(c) No secondary source of supply of a type other than those enumerated in subsections (a) and (b) shall be physically connected on the customer service line to or into the facility.

[As amended at: 22 IR 2517.]

327 IAC 8-10-6 ------ Cross connections; control; operation: land irrigation facility buried below ground; installation of air gaps or other devices

Customers shall construct an air gap, or install a reduced pressure principle backflow preventer or pressure type vacuum breaker in accordance with section 7 of this rule, on the water line connecting the public water supply to any land irrigation facility buried below ground that has a sprinkler outlet located less than six (6) inches above grade and is constructed after July 19, 1985.

[As amended at: 22 IR 2518.]

327 IAC 8-10-7 ------ Cross connections; control; operation: construction and installation requirements for air gaps or other devices

(a) The discharge pipe of an air gap shall terminate:

(1) a minimum of two (2) pipe diameters of the discharge pipe or six (6) inches, whichever is the lesser, above the maximum recorded flood level or above the flood level rim of the receiving vessel, whichever is higher; or

(2) a minimum of three (3) pipe diameters of the discharge pipe or six (6) inches, whichever is the lesser, above the maximum recorded flood level or above the flood level rim of the receiving vessel, whichever is higher where:

(A) a side wall, rib, or similar obstruction is spaced closer than three (3) diameters from the piping affecting the air gap; or

(B) two (2) intersecting walls are located closer than four (4) pipe diameters from the piping affecting the air gap.

(b) Only those models of double check valve assemblies, reduced pressure principle backflow preventers, and pressure vacuum breakers that have been listed by the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California, August, 27, 1997, or those acceptable under the Indiana plumbing code pursuant to the fire prevention and building safety commission rules at 675 IAC 16-1.2, shall be installed.

(c) Reduced pressure principle backflow preventers shall be installed horizontally with:

(1) no plug or additional piping affixed to the pressure differential relief valve port; and

(2) the pressure differential relief valve port a minimum of twelve (12) inches above floor level.

Additionally, the device must be installed at a location where any leakage from the pressure differential relief valve port will be noticed, and that allows access to the valve for maintenance and testing from floor level, without use of a ladder or other similar temporary apparatus, and that will not subject the device to flooding, excessive heat, or freezing.

(d) All double check valve assemblies shall be installed at a location that allows access to the device for maintenance and testing from floor level, without use of a ladder or other similar temporary apparatus, and that will not subject the device to flooding, excessive heat, or freezing.

(e) Pressure vacuum breakers shall be installed as near as possible to the irrigation facility, at a location that allows access to the device for maintenance and testing from floor or ground level, without use of a ladder or other similar temporary apparatus, and that will not subject the device to flooding, excessive heat, or freezing. Additionally, the device must be installed between two (2) tightly closing shut-off valves, with its center line or datum point a minimum of twelve (12) inches above:

(1) floor level;

(2) the highest downstream piping or shut-off valve; and

(3) the highest downstream overflow rim or discharge point.

[As amended at: 22 IR 2518.]

327 IAC 8-10-8 ------ Cross connections; control; operation: inspection of devices; time limits

(a) The customer shall install and maintain in working order at all times any cross connection control device or booster pump control device required by this rule.

(b) To ensure that each cross connection control device required by this rule is in working order, the customer shall have each device inspected or tested by a cross connection control device inspector at the time of construction or installation, and at the following intervals, in the following manner:

(1) Air gaps shall be inspected at intervals not exceeding one (1) year to ensure that they continue to meet the requirements of section 7 of this rule.

(2) Reduced pressure principle backflow preventers shall be tested at intervals not exceeding six (6) months to ensure that:

(A) both check valves are drip-tight under all pressure differentials; and

(B) the pressure differential relief valve will maintain pressure in the center chamber at least two (2) pounds per square inch below that of the inlet chamber.

(3) Double check valve assemblies shall be tested at intervals not exceeding one (1) year to ensure that both check valves are drip-tight under all pressure differentials.

(4) Pressure vacuum breakers shall be tested at intervals not exceeding one (1) year to ensure that the air inlet opens fully when water pressure is at or below atmospheric pressure.

(c) The customer shall permit access to the customer's premises by the inspector, the customer's public water system, or the commissioner, at reasonable times, and upon presentation of identification, for inspection of the customer water system or testing of cross connection control devices installed in accordance with this rule.

(d) Those customers granted an exemption in accordance with section 4(e) of this rule shall report to the commissioner and to the supplier of water any proposed change in process, plumbing, or materials used or stored at the exempted facility at least fourteen (14) days prior to making the change. Failure to do so shall void the exemption.

[As amended at: 22 IR 2518.]

327 IAC 8-10-9 ------ Cross connections; control; operation: inspectors; reports of inspection or test

(a) All cross connection control device inspectors shall:

(1) be registered with the commissioner in accordance with section 11 of this rule; and

(2) submit reports of all inspections as required by subsection (b).

(b) The inspector shall report to the public water system, the customer and, if requested, the commissioner, on a form provided by the commissioner, the results of inspections or tests conducted pursuant to section 8(b) of this rule on air gaps, reduced pressure principle back-flow preventers, double check valve assemblies, and pressure vacuum breakers. Reports shall be submitted to the public water system and to the customer within thirty (30) days of the inspection or test.

[As amended at: 22 IR 2519.]

327 IAC 8-10-10 ---- Cross connections; control; operation: noncompliance; retention of reports; access

(a) Because cross connections may cause disease through transmission of contaminants via the public water system, the commissioner shall order the public water system to remove the customer service meter or otherwise sever the public water system connection to any customer which the commissioner finds or has reason to believe is in violation of any provision of this rule.

(b) The supplier of water shall retain the three (3) most recent reports of tests conducted on air gaps, reduced pressure principle backflow preventers, double check valve assemblies, and pressure vacuum breakers installed in accordance with this rule. The supplier of water shall permit access to these files at reasonable times and upon presentation of identification by the commissioner.

(c) If so requested, the public water system shall submit to the commissioner copies of any report required to be retained by subsection (b).

[As amended at: 22 IR 2519.]

327 IAC 8-10-11 ---- Cross connections; control; operation: registration of inspectors; list of registered inspectors; list of approved devices

(a) Upon reviewing and finding the information certified by the training provider acceptable, the commissioner shall issue a registration number to each person whose training provider has certified that the applicant has met the following requirements of education and examination:

(1) The information supplied by the applicant must be reviewed and acceptable to the training provider.

(2) Each applicant must attend forty (40) hours of education and successfully com-

plete a written and oral examination for cross connection device inspectors administered by a training provider.

(b) The commissioner may revoke the registration of any cross connection control inspector, following a hearing pursuant to IC 4-21.5, when it is found that the inspector has violated any of the provisions set out in this rule or IC 13-18-11-8.

(c) The commissioner shall maintain a list entitled "Indiana Registered Cross Connection Control Device Inspectors, All Inspectors", that is comprised of cross connection control device inspectors registered in Indiana.

(d) The commissioner shall maintain a list entitled "Indiana Registered Cross Connection Control Device Inspectors, Active Inspectors", that is comprised of cross connection control device inspectors that are registered in Indiana in accordance with subsection (a) and who have requested their inclusion on this list in writing to the commissioner during the previous two (2) years.

(e) The commissioner shall maintain a list entitled "List of Approved Backflow Prevention Assemblies, August 27, 1997, Foundation for Cross Connection Control and Hydraulic Research, University of Southern California" that is comprised of a listing of cross connection control devices from the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California.

(f) The commissioner shall make the following lists as described in this section available to the public upon request:

(1) Indiana Registered Cross Connection Control Device Inspectors, All Inspectors.

(2) Indiana Registered Cross Connection Control Device Inspectors, Active Inspectors.

(3) List of Approved Backflow Prevention Assemblies, August 27, 1997, Foundation for Cross Connection Control and Hydraulic Research, University of Southern California.

[As amended at: 22 IR 2519.]

327 IAC 8-10-12 ---- Cross connections; control; operation: approval of an organization as a training provider of cross connection control device inspectors; record keeping

(a) The commissioner shall approve an organization as a training provider of cross connection control device inspectors if the training provider's proposed course meets the following requirements:

(1) The proposed course instruction and examination have a total duration of at least forty (40) hours.

(2) The proposed course deals with matters directly related to the cross connection control devices that include, but are not limited to, the following:

(A) Cross connection identification, degree of hazard, prevention, control devices, and practices.

(B) Backflow prevention assembly field test procedures and gage accuracy verification, Section 9 from the "Manual of Cross Connection Control", ninth edition, 1993, from the Foundation for Cross Connection Control and Hydraulic Research, University of Southern California.

(C) Cross connection control device inspection, repair, and maintenance.

(D) Content, intent, and related policy of this rule.

(E) Responsibilities of the customer, public water system, and cross connection control device inspector.

(3) Each instructor of the proposed course must be recognized by Indiana as a cross connection control device inspector and is qualified by academic work or practical experience directly related to cross connection control device inspection to teach the assigned subject.

(4) Includes both a written and oral examinations proctored by different instructors and meets the following requirements:

(A) A written examination which tests the student's comprehension of the material discussed in subdivision (2).

(B) An oral examination which tests the student's ability and competency to perform inspections, test procedures specified under subdivision (2)(B), and troubleshooting on cross connection control devices.

(5) The organization submits a written request to the commissioner for approval as a training provider of cross connection control device inspectors. The request shall contain the following:

(A) The name, address, and telephone number of the organization, name of the course, specific topics on which there are to be presentations, time devoted to each topic, and dates and locations where the course will be offered.

(B) All instructor's names, registration numbers, educational backgrounds, professional experiences, and current professional affiliations.

(C) Information to demonstrate fulfillment of the requirements of subdivision (2) to the satisfaction of the commissioner.

(D) A written class outline.

(b) The commissioner's approval of an organization as a training provider of cross connection control device inspectors shall be valid for a duration of five (5) years.

(c) All training providers must maintain records on the date of all courses, the names of all individuals attending the course, duration of the course, all instructor's names, and the program content. These records shall be maintained for five (5) years.

(d) Training providers must submit to the commissioner a record of individuals attending courses within thirty (30) days of the conclusion of the course. These records shall be maintained for a five (5) year period. The record shall contain the following:

(1) Name of course.

(2) Name, address, and current phone number of individual attending course.

(3) Date of course.

(4) Performance on the written and oral examinations required by subsection (a)(4).

(e) The commissioner may revoke the approval of a training provider, following a hearing pursuant to IC 4-21.5, when it is found that the training provider has violated any of the provisions set out in the approval of the training provider's cross connection control device inspectors course, in this rule, or IC 13-18-11-8.

[As added at: 22 IR 2520.]

327 IAC 8-10-13 ---- Cross connections; control; operation: incorporation by reference

(a) The following materials, including titles and names and addresses of where they may be located for inspection and copying, are incorporated by reference into this rule:

(1) "List of Approved Backflow Prevention Assemblies, August 27, 1997, Foundation for Cross Connection Control and Hydraulic Research, University of Southern California", Foundation for Cross Connection Control and Hydraulic Research, University of Southern California, Kaprielian Hall 200, Los Angeles, California 90089-2531 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

(2) Backflow Prevention Assembly Field Test Procedures and Gage Accuracy Verification, Section 9 from the "Manual of Cross Connection Control", ninth edition, 1993, Foundation for Cross Connection Control and Hydraulic Research, University of Southern California, Kaprielian Hall 200, Los Angeles, California 90089-2531 or from the Indiana Department of Environmental Management, Office of

Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.

(b) The technical standards presented in subsection (a) are continuously revised on a twenty-four (24) month cycle. The commissioner shall commence rulemaking efforts to update the documents incorporated by reference in this section.

[As added at: 22 IR 2521.]

RULE 11. WATER PURIFICATION AND TREATMENT WORKS; OPERATION; REQUIREMENTS

327 IAC 8-11-1 ------ Water purification or treatment works: operation; reports; annual operator's certificate

(a) All purification or treatment works producing water to be used, or available, for drinking purposes by the public, shall be properly and efficiently operated under the supervision of a competent operator or superintendent.

(b) Weekly reports of operation of such water purification or treatment works shall be submitted by the owner or operator to the commissioner. Such reports of operation shall be submitted on forms to be provided by the commissioner and shall include such items of information as may be found to be necessary by the commissioner.

(c) The commissioner shall issue annually a certificate of qualification to each qualified operator or superintendent in responsible charge of producing or delivering a safe, potable drinking water and may request the same to attend short courses or schools, whenever in the opinion of the commissioner such training is deemed necessary for the protection of the public health.

RULE 12. CLASSIFICATION OF COMMUNITY PUBLIC WATER SYSTEM AND NONTRANSIENT NONCOMMUNITY PUBLIC WATER SYSTEM TREATMENT PLANTS AND DISTRIBUTION SYSTEMS; EXAMINATION AND CERTIFICATION OF OPERATORS

327 IAC 8-12-0.3 --- Classification of treatment plants and distribution systems: purpose

(a) The purpose of this rule is to establish the following:

(1) A classification system for community public water system and nontransient noncommunity public water system treatment plants and distribution systems.

(2) The criteria by which a person may become a water treatment plant and water distribution system certified operator.

(b) The intended result of this rule is to ensure that the water treatment plant and water distribution system operators of:

(1) community public water systems;

(2) nontransient noncommunity public water systems;

(3) transient noncommunity public water systems using surface water or ground water under the direct influence of surface water; and

(4) transient noncommunity public water systems that employ complex treatment;

are trained, certified, and have knowledge of the public health reasons for drinking water standards thereby providing consumers with a safe drinking water supply.

[As added at: 24 IR 972.]

327 IAC 8-12-0.5 --- Classification of treatment plants and distribution systems: applicability

This rule applies to:

(1) a certified operator who works at;

(2) a person endeavoring to become a certified operator at; and

(3) the owner of;

a community public water system, nontransient noncommunity public water system, transient noncommunity public water system using surface water or ground water under the direct influence of surface water, or a transient noncommunity public water system that requires complex treatment.

[As added at: 24 IR 973.]

327 IAC 8-12-1 ------ Classification of treatment plants and distribution systems: definitions

In addition to the definitions contained in IC 13-11-2 and 327 IAC 1, the following definitions apply throughout this rule:

(1) "Acceptable experience" means employment in the actual hands-on operation of a water treatment plant or water distribution system. Experience in water w treatment plant maintenance that directly relates to plant operation will be given a maximum of fifty percent (50%) credit for operational experience for those employed solely in this area. Experience in a water treatment plant laboratory that directly relates to plant operation will also be given a maximum of fifty percent (50%) credit for operational experience for those employed solely in this area. Acceptable experience shall be obtained under the supervision of a certified operator or by otherwise demonstrating to the commissioner that the applicant's experience meets the requirements described by this subdivision.

(2) "Applicant" means a person seeking certification as a water treatment or water distribution system certified operator, whether or not the person is currently employed as an operator.

(3) "Application" means a written request for certification under this rule addressed to the commissioner.

(4) "Automated monitoring" means a continuous monitoring system that will cause an alarm, dialer, or pager to notify a certified operator in cases where a water treatment plant or water distribution system may fail during periods of normal operation.

(5) "Available" means that, based on water treatment or water distribution system size, complexity, and source water quality, a certified operator must be on site or able to be contacted if needed to initiate appropriate action in a timely manner.

(6) "Certificate" means an appropriate document containing the following information:

(A) Affirmation that the named person has fulfilled the requirements, including receiving a passing examination grade, necessary for the operation of the water treatment plant or water distribution system for which application was made.

(B) The water treatment plant or water distribution system classification that may be operated under the issued certificate.

(C) The date of issuance.

(D) An identification number unique to each certificate document.

(7) "Certification card" means a card issued to a person who has fulfilled the requirements to be a water treatment plant or distribution system certified operator and contains the following information:

(A) The name and certificate number of the person.

(B) The classification of the water treatment plant or distribution system that the named person may operate.

(C) An expiration date.

(8) "Certified operator" means a person who has:

(A) met the requirements of this rule;

(B) a valid certificate in a classification identified in section 2 of this rule for water treatment or water distribution operation; and

(C) the ability to make decisions regarding the daily operational activities of a a public water system water treatment plant or water distribution system that will directly impact the quality or quantity of the drinking water.

(9) "Certified operator in responsible charge" means a person designated by the owner or governing body of a water treatment plant or water distribution system to be the certified operator who has complete responsibility for the proper operation of a water treatment plant or water distribution system and makes decisions regarding the daily operational activities of a public water system treatment plant or distribution system that will directly impact the quality or quantity of drinking water from community public water supply systems and nontransient noncommunity public water supply systems.

(10) "Commissioner" means the commissioner of the department of environmental management.

(11) "Contact hour" means a fifty (50) to sixty (60) minute instructional session involving an instructor or lecturer approved by the commissioner. Ten (10) contact hours equals one (1) continuing education unit (CEU) as defined by the National Task Force on the Continuing Education Unit.

(12) "Operating shift" means that period of time during which operator decisions that affect public health are necessary for the proper operation of the system.

(13) "Plant operation" means the time of:

(A) actual production; or

(B) pumping to produce drinking water supply.

(14) "Population served" means the currently accepted population equivalent.

(15) "Training provider" means a person who conducts or presents a course training session approved under section 7.1 of this rule.

[As amended at: 24 IR 973.]

327 IAC 8-12-1.1 --- Classification of treatment plants and distribution systems: responsibilities

The owner or governing body of a water treatment plant or water distribution system shall be responsible to accomplish the following:

(1) Place each water treatment facility and water distribution system under the direct supervision of a certified operator in responsible charge who:

(A) has a valid certification of a grade eligible for operation at the classification of water treatment facility or water distribution system of responsibility; and

(B) is available to make process control or system integrity decisions about water quality or quantity that affect public health.

(2) Designate one (1) certified operator to have complete responsibility for the proper operation of the water treatment plant or water distribution system.

(3) Assure that a minimum of one (1) operator certified according to this rule must be available for each operating shift.

(4) Notify the commissioner of the name of the person designated according to subdivision (1) to be the certified operator in responsible charge.

(5) Submit written notice to the commissioner no later than thirty (30) days after the occurrence of one (1) of the following:

(A) A change in the person serving as the certified operator in responsible charge.

(B) A change in conditions or circumstances that were used as the basis for the original classification of the water treatment plant or water distribution system.

[As amended at: 24 IR 974.]

327 IAC 8-12-2 ------ Classification of treatment plants and distribution systems: classification of water distribution systems and water treatment plants

(a) A water distribution system shall be classified in one (1) of three (3) classifications as follows:

(1) Class DSS (distribution system small) includes systems that:

(A) serve a population of less than three thousand three hundred (3,300); and

(B) have no components other than:

(i) pressure tanks; or

(ii) storage tanks.

(2) Class DSM (distribution system medium) includes systems that meet one (1) of the following:

(A) Serve a population greater than or equal to three thousand three hundred one (3,301) but less than or equal to ten thousand (10,000) people and have no mechanical means of movement of water other than one (1) of the following:

(i) Pressure tanks.

(ii) Storage tanks.

(B) Consist of the following:

(i) Pump.

(ii) Storage tanks.

(iii) Booster pumps to storage tanks.

(3) Class DSL (distribution system large) includes systems that meet one (1) of the following:

(A) Serve a population greater than or equal to ten thousand one (10,001) people.

(B) Consist of the following:

(i) Storage tanks.

(ii) Booster pumps to the distribution system.

(iii) Mechanical devices for movement of water beyond storage.

(b) A water treatment plant shall be classified in one (1) of six (6) classifications, based on population served and type of treatment, as follows:

(1) Class WT 1 includes systems that meet the following:

(A) Serve a population less than or equal to five hundred (500) people.

(B) Acquire water from one (1) of the following:

(i) Ground water.

(ii) Purchase.

(C) Have one (1) of the following:

(i) Ion exchange softening process for cation removal.

(ii) Inline filtration device with no chemical treatment.

(2) Class WT 2 includes systems with no population limitations that meet the following:

(A) Acquire water from one (1) of the following:

(i) Ground water.

(ii) Purchase.

(B) Utilize chemical feed to achieve one (1) of the following:

(i) Disinfection.

(ii) Fluoride standardization.

(iii)Water stabilization.

(3) Class WT 3 includes systems that meet the following:
(A) Acquire water from one (1) of the following:
(i) Ground water.
(ii) Purchase.
(B) Utilize chemical feed.
(C) Have one (1) of the following:
(i) Pressure or gravity filtration.
(ii) Ion exchange processes if the population served is greater than five hundred one (501).
(iii) Lime soda softening.
(iv) Reverse osmosis.
(4) Class WT 4 includes systems that meet the following:
(A) Serve a population less than or equal to ten thousand (10,000) people.
(B) Acquire water from one (1) of the following:
(i) Surface water.
(ii) Ground water under the direct influence of surface water.
(5) Class WT 5 includes systems that meet the following:
(A) Serve a population greater than ten thousand one (10,001) people.
(B) Acquire water from one (1) of the following:
(i) Surface water.
(ii) Ground water under the direct influence of surface water.
(6) Class WT 6 includes systems that utilize newly emerging treatment technology not commonly in use for drinking water treatment in Indiana, as determined by the commissioner.

[As amended at: 24 IR 974.]

327 IAC 8-12-2.5 --- Classification of treatment plants and distribution systems: reclassification of water treatment plants and water distribution systems

(a) Water treatment plants and water distribution systems will be reclassified by the commissioner if there are changes in the conditions or circumstances upon which the original classification was based.

(b) A water treatment plant or water distribution system may be reclassified by the commissioner if one (1) of the following situations exists:
(1) The treatment plant or water distribution system utilizes:
(A) special or complex equipment;
(B) newly emerging treatment technology; or
(C) features of design requiring a change in operation.
(2) The demonstration of the reliability of new technology.
(3) Change necessitated by law.
(4) The commissioner determines that a new classification is required to protect public health.

(c) Notice of the commissioner's decision according to subsection (a) or (b) to reclassify a water treatment plant or water distribution system shall be given to the governing body or owner and to the operators, and such notice shall indicate the grade of the certified operator in responsible charge who will be required to supervise the reclassified plant or system and how soon an operator with such qualifications must be obtained.

[As added at: 24 IR 977.]

327 IAC 8-12-3 ------ Classification of treatment plants and distribution systems: qualifications of a certified operator

(a) In order to become a certified operator of a water treatment plant or a water distribution system, a person must:

(1) meet the minimum qualifications specified in subsection (b); and

(2) pass the certification examination required by the commissioner unless exempted by statute or rule.

(b) Prior to applying to take the water treatment plant or water distribution system operator certification examination given by the commissioner, a person must have the following qualifications:

(1) The educational skills necessary to:

(A) make simple computations with fractions and decimals;

(B) read a linear scale;

(C) calculate volumes of simple shapes;

(D) make simple computations of multiplication and division;

(E) keep records;

(F) read and write the English language to the extent of interpreting service manuals and work orders and submitting written reports;

(G) understand basic principles of sanitation; and

(H) understand basic principles of science.

(2) With the exception of an operator-in-training, experience acceptable to the commissioner in the field of water treatment or water distribution that:

(A) demonstrates the examination applicant's technical knowledge;

(B) can be verified based on information from available sources, primarily the applicant's water treatment plant or water distribution system employer; and

(C) is the result of satisfactory accomplishment of work in accordance with the following:

(i) Measured from the date of employment of the applicant to the date of the next scheduled examination.

(ii) Received under the supervision of a certified operator qualified to operate the same classification of treatment plant or distribution system as that of the applicant's certification application.

[As amended at: 24 IR 977.]

327 IAC 8-12-3.2 --- Classification of treatment plants and distribution systems: certified operator grades

(a) Grade operator-in-training (O.I.T.) is available under the following guidelines:

(1) To a person meeting the following:

(A) Currently employed at a public water system with facilities classified as a Class WT 3, Class WT 4, or Class WT 5 water treatment plant or a DSL water distribution system.

(B) Has fulfilled the qualifications of section 3(a)(2) and 3(b)(1) of this rule.

(2) In accordance with the following:

(A) Until the O.I.T. meets the experience requirement needed for the classification of treatment plant or distribution system where the O.I.T. is accumulating work experience.

(B) Operating work must be accomplished under the supervision of a certified operator in responsible charge who must verify to the commissioner the satisfactory achievement of acceptable experience by the O.I.T.

(C) An O.I.T. may not:

(i) serve as a certified operator in responsible charge;

(ii) transfer an O.I.T. certification to a water treatment plant or distribution system with a public water system identification number (PWSID) different than the PWSID for which the certification was issued;

(iii) hold two (2) treatment plant or distribution system O.I.T. certifications concurrently; or

(iv) renew the O.I.T. certification.

(b) A water distribution system certified operator may possess a valid certification in one (1) or more of the following three (3) grades:

(1) Grade DSS is a certified operator qualified to operate a Class DSS water distribution system after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Attain a minimum of one (1) year of acceptable work experience in the operation of a Class DSS water distribution system.

(2) Grade DSM is a certified operator qualified to operate a Class DSS and Class DSM water distribution system after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Attain one (1) of the following acceptable work experience requirements:

(i) One (1) year in the operation of a Class DSM water distribution system.

(ii) Two (2) years in the operation of a Class DSS water distribution system.

(3) Grade DSL is a certified operator qualified to operate a Class DSS, Class DSM, and Class DSL water distribution system after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Must be able to:

(i) maintain inventories;

(ii) order supplies and equipment; and

(iii) interpret chemical and bacteriological sample reports.

(D) Attain one (1) of the following acceptable work experience requirements:

(i) One (1) year in the operation of a Class DSL water distribution system.

(ii) Three (3) years in the operation of a Class DSM water distribution system.

(iii) Five (5) years in the operation of a Class DSS water distribution system.

(iv) An acceptable number of years of experience approved by the commissioner if gained in operation of a combination of the various classifications of water distribution systems.

(c) A water treatment plant certified operator may possess a valid certification in one (1) or more of the following five (5) grades:

(1) Grade WT 1 is a certified operator qualified to operate a Class WT 1 water treatment plant after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Must be able to:

(i) maintain inventories;

(ii) order supplies and equipment; and

(iii) interpret chemical and bacteriological sample reports.

(D) Attain a minimum of one (1) year of acceptable work experience in the operation of a Class WT 1 water treatment plant.

(2) Grade WT 2 is a certified operator qualified to operate a Class WT 1 and a Class WT 2 water treatment plant after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Must be able to:

(i) maintain inventories;

(ii) order supplies and equipment; and

(iii) interpret chemical and bacteriological sample reports.

(D) Attain one (1) of the following acceptable work experience requirements:

(i) One (1) year in the operation of a Class WT 2 water treatment plant.

(ii) Two (2) years in the operation of a Class WT 1 water treatment plant.

(3) Grade WT 3 is a certified operator qualified to operate a Class WT 1, Class WT 2, and Class WT 3 water treatment plant after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Must be able to:

(i) maintain inventories;

(ii) order supplies and equipment; and

(iii) interpret chemical and bacteriological sample reports.

(D) Attain the following acceptable work experience at a minimum:

(i) Two (2) years in the operation of a Class WT 3 water treatment plant.

(ii) Successful completion of educational work at college level in:

(AA) engineering;

(BB) chemistry; or

(CC) science;

related to water treatment may be substituted for work experience required according to item (i) at the ratio of four (4) semesters or six (6) quarters of schooling for a maximum substitution of one (1) year of experience.

(4) Grade WT 4 is a certified operator qualified to operate a Class WT 1, Class WT 2, and Class WT 4 water treatment plant after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Must be able to:

(i) maintain inventories;

(ii) order supplies and equipment; and

(iii) interpret chemical and bacteriological sample reports.

(D) Attain the following acceptable work experience at a minimum:

(i) Two (2) years in the operation of a Class WT 4 water treatment plant.

(ii) Successful completion of educational work at college level in:

(AA) engineering;

(BB) chemistry; or

(CC) science;

related to water treatment may be substituted for work experience required according to item (i) at the ratio of four (4) semesters or six (6) quarters of

schooling for a maximum substitution of one (1) year of experience.

(iii) Two (2) years in the operation of a Class WT 3 water treatment plant may substitute for a maximum of one (1) year of experience required according to item (i).

(5) Grade WT 5 is a certified operator qualified to operate a Class WT 1, Class WT 2, Class WT 4, and Class WT 5 water treatment plant after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Must have the ability to:

(i) use conversion factors;

(ii) solve simple mathematical equations;

(iii) understand simple chemical laboratory equipment;

(iv) understand the bacteriological procedures used in water supply work;

(v) maintain inventories; and

(vi) order supplies and equipment.

(D) Attain the following acceptable work experience at a minimum:

(i) One (1) of the following:

(AA) Three (3) years in the operation of a Class WT 5 water treatment plant.

(BB) Five (5) years in the operation of a Class WT 4 water treatment plant.

(ii) Successful completion of educational work at college level in:

(AA) engineering;

(BB) chemistry; or

(CC) science;

related to water treatment may be substituted for work experience required according to item (i) at the ratio of four (4) semesters or six (6) quarters of schooling for one (1) year of experience, up to a maximum of two (2) years of experience.

(iii) Two (2) years in the operation of a WT 3 water treatment plant may be substituted for one (1) year of experience required according to item (i) up to a maximum substitution of two (2) years experience.

(6) Grade WT 6 is a certified operator qualified to operate a Class WT 6 water treatment plant that requires operator qualifications determined by the commissioner on an individual plant basis in response to the specialized nature of the water treatment plant.

(d) An applicant for water treatment plant or water distribution system operator certification may submit proof to the commissioner to demonstrate the achievement of an equivalent level of acceptable work experience for that required by the following subsections:

(1) (b)(1)(C).

(2) (b)(2)(C).

(3) (b)(3)(D).

(4) (c)(1)(D).

(5) (c)(2)(D).

(6) (c)(3)(D).

(7) (c)(4)(D).

(8) (c)(5)(D).

(e) A Grade WT 3, Grade WT 4, and Grade WT 5 operator is qualified to apply for the appropriate wastewater treatment certification according to 327 IAC 5-22 to treat wastewater from a water treatment plant provided the operator is certified to operate that classification of water treatment plant.

[As added at: 24 IR 980.]

327 IAC 8-12-3.4 --- Classification of treatment plants and distribution systems: grandparenting

(a) For the purposes of this rule, grandparenting is the process through which the commissioner may issue operator certification to a person who has been working at a water treatment plant or water distribution system that prior to the effective date of this rule was not required to be under the supervision of a certified operator. An operator certificate to be conferred through grandparenting may be issued if:

(1) the owner or governing body meets the criterion of subsection (b); and

(2) the recipient of such certificate must abide by the requirements of subsection (d).

(b) The commissioner may issue an operator certification in the operator grade appropriate to the classification of water treatment plant or water distribution system where the recipient has been an employee acting in the capacity of an operator making process control decisions that affect the quality or quantity of water from the treatment plant or distribution system if the owner or governing body submits an application to the commissioner before September 1, 2002, requesting certification of each person intended to be designated as one (1) of the facility's operators in responsible charge.

(c) A certification conferred under grandparenting shall be:

(1) valid only at the site where the person receiving the grandparent certification gained operator experience;

(2) valid for three (3) years during which time the operator must:

(A) fulfill the continuing education requirements for the grade of operator certification that has been conferred through grandparenting as listed in section 7.5 of this rule in order to be eligible for certification renewal according to section 7(e)(3) of this rule; and

(B) successfully complete an operator training course specified by the commissioner; and

(3) invalid if the classification of the water treatment plant or water distribution system changes to one (1) requiring a certified operator with more extensive education or experience qualifications, such as may be based on:

(A) increased capacity;

(B) an increase in population served;

(C) a basic change in the method of water treatment; or

(D) another change in conditions that causes a more difficult or complex operation.

(d) If an operator certified under grandparenting according to this section:

(1) fails to meet the continuing education requirements of section 7.5 of this rule within the required time according to subsection (c)(2); or

(2) goes to work at water treatment plant or water distribution system other than the one for which the grandparent certification was conferred;

then the grandparent certification is voided and the operator must become certified according to the requirements of this rule.

[As added at: 24 IR 982.]

327 IAC 8-12-3.6 --- Classification of treatment plants and distribution systems: certified operator in responsible charge

(a) A certified operator may be in responsible charge of more than one (1) water treatment plant or water distribution system, if the following conditions are met:

(1) The certified operator will be able to provide adequate supervision to all units involved.

(2) Prior to undertaking multiple operator positions of responsible charge, a letter signed by the certified operator is submitted to the owner or governing body of each water treatment plant and water distribution system to be under the responsible charge of the certified operator providing the following information:

(A) The name and location of each each water treatment plant and water distribution system to be under the responsible charge of the certified operator.

(B) The number of hours per week the certified operator shall work at each water treatment plant and water distribution system.

(b) As used in this section, "adequate supervision" means that sufficient time is spent at a water treatment plant or water distribution system on a regular basis to assure that the certified operator is knowledgeable of the actual operations and that test reports and results are representative of the actual operational conditions. A daily visit is the time that a certified operator is present on site at the facility of responsibility during a twenty-four (24) hour period; a certified operator shall be credited for no more than one (1) daily visit within a twenty-four (24) hour period. The following establishes minimum criteria regarding adequate supervision at each classification of water distribution system and water treatment plant:

(1) DSS must:

(A) be monitored daily by a dependable person or automated system; and

(B) have a certified operator on site for a minimum of two (2) daily visits every week.

(2) DSM must:

(A) be monitored daily by a dependable person or automated system; and

(B) have a certified operator on site for a minimum of three (3) daily visits every week.

(3) DSL must:

(A) be monitored daily by a dependable person or automated system; and

(B) have a certified operator on site for a minimum of five (5) daily visits every week.

(4) WT 1 must:

(A) be monitored daily by a dependable person or automated system; and

(B) have a certified operator on site for a minimum of three (3) daily visits every week.

(5) WT 2 must:

(A) be monitored daily by a dependable person or automated system; and

(B) have a certified operator on site for a minimum of five (5) daily visits every week.

(6) WT 3 must:

(A) be monitored daily by a dependable person or automated system; and

(B) have a certified operator on site for a minimum of five (5) daily visits every week.

(7) WT 4 must have a certified operator on site during water treatment plant operation unless the plant is equipped with an automated system approved by the commissioner.

(8) WT 5 must have a certified operator on site during water treatment plant operation unless the plant is equipped with an automated system approved by the commissioner.

(c) The commissioner may request written submission documenting the following:

(1) The name, location, and classification of each water treatment plant and water distribution system under the responsible charge of a certified operator.

(2) The amount of time that a certified operator in responsible charge spends at a facility of responsibility identified according to subdivision (1).

(d) The commissioner shall evaluate information required by this section and any other information pertinent to a water treatment plant or water distribution system under the supervision of a certified operator in responsible charge of multiple facilities and may determine the following:

(1) The time provided for supervision is inadequate.

(2) An amount of time that the certified operator in responsible charge shall be required to spend in the operation of each water treatment plant or water distribution system.

(3) A reduction of the number of water treatment plants or water distribution systems over which the certified operator may have responsible charge.

(4) A reduction of the number of daily visits to be required by the certified operator.

[As added at: 24 IR 982.]

327 IAC 8-12-3.8 --- Classification of treatment plants and distribution systems: certification transition

(a) A certified operator whose certification is valid on the effective date of this rule shall transition to a grade of certification according to the following:

(1) A Grade DS certified operator shall transition to a Grade DSM certification.

(2) A Grade DS certified operator shall transition to a Grade DSL certification if the certified operator has experience in the operation of a distribution system that:

(A) serves a population of more than ten thousand one (10,001); or

(B) is classified as DSL according to section 2 of this rule.

(3) A Grade DS-L certified operator shall transition to a Grade DSL certification.

(4) A Grade CT certified operator shall transition to a Grade WT 2 certification.

(5) A Grade PF certified operator shall transition to a Grade WT 3 certification.

(6) A Grade GF certified operator shall transition to a Grade WT 4 certification.

(7) A Grade GF certified operator shall transition to a Grade WT 5 certification if the certified operator has experience in the operation of a water treatment plant that is classified as Class WT 5 according to section 2 of this rule.

(8) A Grade AT certified operator shall transition to a Grade WT 3 and Grade WT 5 certification.

(b) A certified operator having certification that:

(1) is valid on the effective date of this rule; and

(2) was obtained by virtue of the position held July 1, 1972;

shall be eligible to operate only the water treatment plant or water distribution system that is designated on the issued certification.

(c) A certified operator shall be qualified to operate at the same classification of facility as the operator was certified to operate prior to the effective date of this rule.

(d) The commissioner may request proof of required experience to transition to a grade identified in subsection (a).

(e) A certified operator affected by the transition of certification according to this section may submit additional information to substantiate a request to transition to a grade other

than that indicated in subsection (a) if the substantiating information is submitted to the commissioner by July 1, 2002.

[As added at: 24 IR 983.]

327 IAC 8-12-4 ------ Classification of treatment plants and distribution systems: examination of applicants to become a certified operator of a water treatment plant or water distribution system

(a) A standardized examination prepared to reflect the duties and responsibilities required of each grade of water treatment plant and water distribution system certified operator shall be:

(1) used to test knowledge, ability, and judgment of an applicant to become a water treatment plant or water distribution system certified operator;

(2) conducted at least annually; and

(3) held at places and times established by the commissioner:

(A) with at least sixty (60) days advanced announcement; and

(B) except in such cases as may be declared necessary exceptions by the commissioner.

(b) A person wishing to be examined for water treatment plant or water distribution system certification shall fulfill the following requirements:

(1) Complete an application on a form approved by the commissioner that:

(A) contains true and accurate information to the best of the applicant's knowledge; and

(B) is free of omissions and misrepresentations, either of which may result in rejection of the application or revocation of any certificate previously granted.

(2) Submit a completed application, with the necessary fee, to the commissioner not later than forty-five (45) days preceding the date of the examination.

(c) The commissioner shall:

(1) review an application and supporting documents concerning the eligibility of an applicant for water treatment plant or water distribution system certification; and

(2) issue a written notification in the form of an admission slip, providing the time and place of the examination, to be presented by an applicant deemed eligible for examination.

(d) A person who has been notified and scheduled to take an examination:

(1) may submit a written request to the commissioner for a postponement to take the examination one (1) offering later than the examination granted by the commissioner if:

(A) the postponement for a nonemergency reason is requested no later than fourteen (14) days prior to the examination date noticed to the applicant under subsection (c)(2);

(B) the postponement request for an emergency reason is submitted as soon as conditions of the emergency warrant;

(C) the applicant provides the commissioner an explicit description of extenuating circumstances necessitating the requested postponement; and

(D) the applicant understands that only one (1) postponement shall be allowed; or

(2) will be considered to have failed that examination if one (1) of the following occurs:

(A) The person does not attend the examination and has not requested a postponement according to subdivision (1).

(B) The person is caught cheating on an examination, an occurrence that will make an applicant ineligible to take any operator certification examination for a

period of two (2) years following the examination date of the incidence of cheating.

(e) Completed examinations shall be managed by the commissioner according to the following:

(1) Graded in a manner prescribed by the commissioner with a minimum result of seventy percent (70%) needed in order to pass the examination.

(2) The commissioner shall notify an applicant of the examination result:

(A) in writing; and

(B) no later than two (2) months after the date of the examination.

(3) Examination papers shall be retained by the commissioner with an opportunity afforded to an applicant notified of having failed the examination for review of the graded examination until a date ninety (90) days prior to the next scheduled examination if the applicant submits the following to the commissioner:

(A) A written request for review of the graded examination.

(B) A statement affirming the applicant's understanding that examination review does not include the right to copy, by any means, the examination or any portion of it.

(f) A person previously certified as a water treatment plant or water distribution system operator under this rule but who has failed to meet the renewal requirements according to section 7(e)(3) of this rule must:

(1) retake an examination; and

(2) meet the renewal requirements of section 7(e)(3) of this rule, including an amount of continuing education equivalent to that required for one (1) renewal period, as specified in section 7.5 of this rule;

within a grace period of one (1) year.

[As amended at: 24 IR 984.]

327 IAC 8-12-5 ------ Classification of treatment plants and distribution systems: certification fees

(a) Fees for water treatment plant and water distribution system operator certification shall be as follows:

(1) Certification, including certificate	$30
(2) Certification by examination for a new classification	$30
(3) Triennial renewal fee	$30
(4) Duplicate or replacement certificate	$15
(5) Replacement card	$15

(b) An application fee will not be returned to an applicant:

(1) who is deemed by the commissioner to be ineligible for water treatment plant or water distribution system certification examination;

(2) who does not receive a minimum score of seventy percent (70%) as required by section 4(e)(1) of this rule; or

(3) whose examination is voided for cheating according to section 4(d)(2)(B) of this rule.

[As amended at: 24 IR 985.]

327 IAC 8-12-6 ------ Classification of treatment plants and distribution systems: certification; reciprocity; provisional certificate

(a) The commissioner shall issue a certificate designating competency in the appropriate certified operator's grade to each person who makes proper application if the applicant meets the necessary requirements of education and experience and successfully completes a grade appropriate examination. Upon successful completion of examination according to

section 4 of this rule, the commissioner shall issue a certification in the certified operator grade in which the applicant was examined.

(b) The commissioner may issue a certificate by reciprocity as outlined in IC 13-18-11-9 if the following conditions are met:

(1) A person seeking reciprocal certification submits an application for such a certificate that includes the following:

(A) Proof of current certification.

(B) Grade of the applicant.

(2) A person from another state seeking a certificate by reciprocity earns the number of continuing education contact hours for all future renewal periods, in the time period required by section 7.5(a) of this rule though no continuing education contact hours shall be required at the time of conferring the reciprocal certification.

(c) The commissioner may issue a provisional water treatment plant or water distribution operator's certificate, if the following occur:

(1) The governing body or owner of a water treatment plant or water distribution system submits a written request specifying the existence of the vacancy and a reason necessitating the provisional certification, including one (1) of the following:

(A) To fill a vacancy created by death.

(B) Resignation of the certified operator in responsible charge.

(C) Extended illness of the certified operator in responsible charge.

(D) A justifiable cause due to unforseen circumstances beyond the control of the governing body or owner that leaves the treatment plant or distribution system without a certified operator.

(2) The written request required by subdivision (1) provides the name, education, and experience of the person for whom the provisional certificate is requested.

(3) The provisional certificate nominee named under subdivision (2) submits, simultaneously with the request submitted under subdivision (1), an application as required by section 4(b) of this rule requesting examination and certification.

(4) The provisional certificate nominee named under subdivision (2) is eligible at the time of the request submitted under subdivision (1) for the next scheduled certification examination.

(d) A provisional certificate shall be:

(1) issued by the commissioner in the form of a letter that specifies the conditions of the certification; and

(2) valid for the shorter of the following lengths of time:

(A) The period between the date of application and the end of the thirty (30) day grading period following the next examination that is available to the provisional certificate nominee.

(B) One (1) year.

[As amended at: 24 IR 985.]

327 IAC 8-12-7 ------ Classification of treatment plants and distribution systems: certificates and certification cards; renewal; duplicates

(a) A water treatment plant and water distribution system operator's certificate shall:

(1) be issued after an applicant's successful completion of the grade appropriate examination;

(2) specify the month and year that the applicant qualified and the issuance date of the certificate;

(3) be permanent in nature but will be effective only when validated by a current certification card; and

(4) not be valid if obtained through fraud, deceit, or by the submission of inaccurate data on the application.

(b) A water treatment plant or water distribution system certified operator must:

(1) provide permanent and visible display of his or her certificate at the water treatment plant or water distribution system office; and

(2) obtain a duplicate certificate to display in the office of each water treatment plant and water distribution system supervised, if the certified operator supervises more than one (1) water treatment plant or water distribution system.

(c) A certification card shall:

(1) be issued simultaneously with the certificate;

(2) be issued for a time period of no more than thirty-six (36) months; and

(3) expire on the last day of June nearest the end of the triennial period following issuance.

(d) A water treatment plant or water distribution system certified operator needing a replacement or duplicate certificate must or card submit a written request to the commissioner that includes the following:

(1) The following information:

(A) The grade of the water treatment plant or water distribution system certified operator.

(B) The name and classification of the water treatment plant or water distribution system to be operated.

(C) The date of issuance of the original certificate if known.

(D) The certificate number.

(2) A fee specified according to section 5(a)(4) or 5(a)(5) of this rule.

(e) The commissioner shall accomplish the following:

(1) Issue to each certified operator of a water treatment plant or water distribution system a renewal notification stating the following:

(A) The expiration date of the certified operator's certification card.

(B) The amount of the fee required for certification card renewal.

(2) Mail certification card renewal notifications:

(A) at least thirty (30) days prior to expiration of the certification card; and

(B) to the last known address filed with the commissioner.

(3) Renew a certification card if:

(A) the continuing education requirements of section 7.5 of this rule are met;

(B) a renewal fee described in section 5(a)(3) of this rule is submitted to the commissioner on or before the first day of July of the triennial period for which a certification card is to be issued; and

(C) the notice is signed and returned by the certified operator to the commissioner.

(4) Reinstate certification if the operator:

(A) submits payment of any arrearage of fees;

(B) submits payment of the current renewal fee;

(C) passes the grade appropriate examination;

(D) fulfills arrearage of continuing education credit requirements; and

(E) is current in meeting continuing education credit requirements.

(5) Deny renewal of a certification card that is not renewed within the time limit established in section 7.5(a) of this rule and IC 13-18-11-6(c) unless the operator pursues reinstatement through reapplication and reexamination following the requirements of section 4 of this rule.

[As amended at: 24 IR 986.]

327 IAC 8-12-7.1 --- Classification of treatment plants and distribution systems: continuing education credit; criteria for approval

(a) Continuing education contact hour credit shall be given only for completed course work that has been approved by the commissioner according to the following:

(1) A training provider has submitted an application and received continuing education course approval from the commissioner prior to publicly offering a water treatment plant or water distribution system continuing education course. The application must:

(A) be submitted on a form approved by the commissioner;

(B) be submitted no less than sixty (60) days before the first date when the course is conducted;

(C) be accompanied by a written course outline or brochure; and

(D) contain the following information:

(i) Name, address, and telephone number of a course sponsor, training provider, or other contact person.

(ii) Name of course.

(iii) Specific topics that are included in the course presentations.

(iv) Amount of time devoted to each topic.

(v) Instructor's name and qualifications, including the following:

(AA) Educational background.

(BB) Professional experience.

(CC) Current professional affiliation.

(vi) Dates and locations where the course will be offered.

(2) The water treatment plant or water distribution system continuing education course meets the following requirements:

(A) The course deals with one (1) or more of the following as determined by the commissioner:

(i) Technical matters related directly to water distribution or water treatment.

(ii) General matters related to the responsibilities of a certified operator.

(B) Each instructor or speaker is qualified by academic work or practical experience to teach the proposed water treatment plant or water distribution system continuing education course.

(b) A water treatment plant or water distribution system certified operator may petition the commissioner for approval of a water treatment plant or water distribution system continuing education course if the following procedures are met:

(1) An application of petition is submitted to the commissioner prior to or within thirty (30) days of course completion.

(2) The application must contain the information required by subsection (a)(1)(A), (a)(1)(C), and (a)(1)(D).

(3) The certified operator must supply written proof of attendance within thirty (30) days after course completion.

(c) Continuing education contact hours of credit earned in another state, whether that state has reciprocity with Indiana for the purpose of transferring a certificate of water treatment plant or water distribution system operator competency, may be eligible for credit if the commissioner is provided the information required by subsection (a)(1)(A), (a)(1)(C), and (a)(1)(D) for the course work from which the contact hours were earned.

(d) A certified operator who is an instructor or speaker at a water treatment plant or water distribution system continuing education course shall be credited the same number of contact hours as the students of the course.

[As amended at: 24 IR 988.]

327 IAC 8-12-7.5 --- Classification of treatment plants and distribution systems: continuing education requirements

(a) All water treatment plant and water distribution system certified operators shall fulfill continuing education requirements in amounts specified in Table 7.5(b) in subsection (b) during each three (3) year period following the issuance of the certification card and prior to having that certification card renewed.

(b) Continuing education credits required for certification card renewal in the grades of water treatment plant and water distribution system certified operators are listed in the following table:

Table 7.5(b)

Certified Operator Grades, Water Distribution System and Water Treatment Plant	Continuing Education Credits Required for Renewal
Grade O.I.T.	Contact hours shall match those required for the classification where operator is in training; certification card not renewable
Grade DSS	10 contact hours
Grade DSM	15 contact hours
Grade DSL	15 contact hours
Grade WT 1	10 contact hours
Grade WT 2	15 contact hours
Grade WT 3	25 contact hours
Grade WT 4	30 contact hours
Grade WT 5	30 contact hours
Grade WT 6	30 contact hours

(c) Continuing education credits required according to Table 7.5(b) in subsection (b) must adhere to a distribution of subject matter according to the following:

(1) A minimum of seventy percent (70%) of the required continuing education contact hours shall be obtained from the technical category of approved continuing education courses.

(2) No more than thirty percent (30%) of the required continuing education contact hours shall be obtained from nontechnical subject matter of approved continuing education courses.

(d) A person having a valid certification card in more than one (1) classification of water treatment plant or water distribution system:

(1) may be given duplicate continuing education credit from a single approved continuing education course for each water treatment plant and water distribution system certification to which the subject matter is applicable; and

(2) must obtain the greatest number of continuing education contact hours required by the various certifications held within the shared time period of overlap in order not to be required to obtain continuing education for each certificate held.

[As added at: 24 IR 989.]

327 IAC 8-12-7.6 --- Classification of treatment plants and distribution systems: continuing education credit; training provider responsibilities

(a) A training provider shall generate records of each water treatment plant or water distribution system continuing education course conducted that include the following:

(1) The date of the water treatment plant or water distribution system continuing education course.

(2) The name of each person attending the water treatment plant or water distribution system continuing education course.

(3) The length of time of the course.

(4) The instructor's name.

(5) The course content.

(6) The name of the organization sponsoring the course.

(b) Records required by subsection (a) shall be maintained for a five (5) year period following the presentation of each water treatment plant or water distribution system continuing education course.

(c) A training provider must submit the information required by subsection (a) to the commissioner according to the following:

(1) On a form approved by the commissioner.

(2) Within thirty (30) days of the conclusion of the water treatment plant or water distribution system continuing education course.

[As added at: 24 IR 989.]

327 IAC 8-12-8 ------ Classification of treatment plants and distribution systems: suspension or revocation of certification

The commissioner may suspend or revoke the certificate of a water treatment plant or water distribution system certified operator, following a hearing pursuant to IC 4-21.5, if it is found that the certified operator has violated any provision of IC 13-18-11-8.

[As amended at: 24 IR 990.]